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GREAT RIVERS DESCRIBED BY GREAT WRITERS

Great Rivers of the World

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As Seen and Described by Great Writers

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ESTHER SINGLETON

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THE RHINE

Great Rivers of the World

As Seen and Described
By Famous Writers

COLLECTED AND EDITED BY
ESTHER SINGLETON

With Numerous Illustrations



NEW YORK
DODD, MEAD & COMPANY

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Published, November, 1908

Preface

RIVERS possess so many varied attractions and have so many claims on the attention of the student of science and history, the pleasure-seeker, the traveller, the poet and the painter, that no apology need be offered for gathering into one volume selections from the works of those who have described some of the most famous streams of the world. Lyell says: "Rivers are the irrigators of the earth's surface, adding alike to the beauty of the landscape and the fertility of the soil: they carry off impurities and every sort of waste *débris*; and when of sufficient volume, they form the most available of all channels of communication with the interior of continents. They have ever been things of vitality and beauty to the poet, silent monitors to the moralist, and agents of comfort and civilization to all mankind."

Thoreau says: "The Mississippi, the Ganges and the Nile, those journeying atoms from the Rocky Mountains, the Himmaleh and Mountains of the Moon, have a kind of personal importance in the annals of the world—the heavens are not yet drained over their sources, but the Mountains of the Moon still send their annual tribute to the Pasha without fail, as they did to the Pharaohs, though he must collect the rest of his revenue at the point of the sword. Rivers must have been the guides which conducted the footsteps of the first travellers. They are the constant lure, when they flow by our doors, to distant enterprise and

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adventure, and, by a natural impulse, the dwellers on their banks will at length accompany their currents to the lowlands of the globe, or explore at their invitation the interior of continents. They are the natural highways of all nations, not only levelling the ground and removing obstacles from the path of the traveller, quenching his thirst, and bearing him on their bosoms, but conducting him through the most interesting scenery, the most populous portions of the globe, and where the animal and vegetable kingdoms attain their greatest perfection."

In the following pages little will be found dealing with the material blessings bestowed on mankind by the agency of rivers. The average reader is more interested in the antiquarian and legendary lore of the sources, rapids, banks and islands of a famous stream. Length of course and volume of water are matters of no importance to lovers of the picturesque, the venerable, or the romantic. Therefore the literature of the Shannon is more fascinating than that of the Amazon, and the Jordan attracts more pilgrims than the Volga. Small streams like the Wye, the Yarrow, and the Oise consequently find a place among these celebrated rivers.

E. S.

New York, October, 1908.

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THE RHINE

VICTOR HUGO

I LOVE rivers; they do more than bear merchandise—ideas float along their surface. Rivers, like clarions, sing to the ocean of the beauty of the earth, the fertility of plains, and the splendour of cities.

Of all rivers, I prefer the Rhine. It is now a year, when passing the bridge of boats at Kehl, since I first saw it. I remember that I felt a certain respect, a sort of admiration, for this old, this classic stream. I never think of rivers—those great works of Nature, which are also great in history,—without emotion.

I remember the Rhone at Valserine; I saw it in 1825, in a pleasant excursion to Switzerland, which is one of the sweet, happy recollections of my early life. I remember with what noise, with what ferocious bellowing, the Rhone precipitated itself into the gulf whilst the frail bridge upon which I was standing was shaking beneath my feet. Ah! well! since that time, the Rhone brings to my mind the idea of a tiger,—the Rhine, that of a lion.

The evening on which I saw the Rhine for the first time, I was impressed with the same idea. For several minutes I stood contemplating this proud and noble river—violent, but not furious; wild, but still majestic. It was swollen, and was magnificent in appearance, and was washing its yellow mane, or, as Boileau says, its "slimy beard," the

bridge of boats. Its two banks were lost in the twilight, and though its roaring was loud, still there was tranquillity.

Yes, the Rhine is a noble river—feudal, republican, imperial—worthy, at the same time, of France and Germany. The whole history of Europe is combined within its two great aspects—in this flood of the warrior and of the philosopher—in this proud stream, which causes France to bound with joy, and by whose profound murmurings Germany is bewildered in dreams.

The Rhine is unique; it combines the qualities of every river. Like the Rhone, it is rapid; broad, like the Loire; encased, like the Meuse; serpentine, like the Seine; limpid and green, like the Somme; historical, like the Tiber; royal, like the Danube; mysterious, like the Nile; spangled with gold, like an American river; and, like a river of Asia, abounding with phantoms and fables.

Before the commencement of History, perhaps before the existence of man, where the Rhine now is there was a double chain of volcanos, which on their extinction left heaps of lava and basalt lying parallel, like two long walls. At the same epoch the gigantic crystallizations formed the primitive mountains; the enormous alluvions of which the secondary mountains consist were dried up; the frightful heap, which is now cold, and snow accumulated on them, from which two great streams issued, the one—flowing towards the north, crossed the plains, encountered the sides of the extinguished volcanos, and emptied itself into the ocean; the other, taking its course westward, fell from mountain to mountain, flowed along the side of the block of extinguished volcanos, which is now Ardâche, and was finally lost in the Mediterranean. The first of those inundations is the Rhine, and the second the Rhone.

From historical records we find that the first people who took possession of the banks of the Rhine were the half-savage Celts, who were afterwards named Gauls by the Romans. When Rome was in its glory, Cæsar crossed the Rhine, and shortly afterwards the whole of the river was under the jurisdiction of his empire. When the Twenty-second Legion returned from the siege of Jerusalem, Titus sent it to the banks of the Rhine, where it continued the work of *Martius Agrippa*. The conquerors required a town to join Melibocus to Taunus; and Moguntiacum, begun by Martius, was founded by the Legion, built by Trajan, and embellished by Adrian. Singular coincidence! and which we must note in passing. This Twenty-second Legion brought with it Crescentius, who was first that carried the Word of God into the Rhingau, and founded the new religion. God ordained that these ignorant men, who had pulled down the last stone of His temple upon the Jordan, should lay the first of another upon the banks of the Rhine. After Trajan and Adrian came Julian, who erected a fortress upon the confluence of the Rhine and the Moselle; then Valentinian, who built a number of castles. Thus in a few centuries, Roman colonies, like an immense chain, linked the whole of the Rhine.

At length the time arrived when Rome was to assume another aspect. The incursions of the Northern hordes were eventually too frequent and too powerful for Rome; so, about the Sixth Century, the banks of the Rhine were strewed with Roman ruins, as at present with feudal ones.

Charlemagne cleared away the rubbish, built fortresses, and opposed the German hordes; but notwithstanding his desire to do more, Rome died, and the physiognomy of the Rhine was changed.

Already, as I before mentioned, an unperceived germ was sprouting in the Rhingau. Religion, that divine eagle, began to spread its wings, and deposited among the rocks an egg that contained the germ of a world. St. Apollinaire, following the example of Crescentius, who, in the year 70 preached the Word of God at Taunus, visited Rigomagum. St. Martin, Bishop of Tours, catechized Confluentia; St. Materne, before visiting Tongres, resided at Cologne. At Trèves, Christians began to suffer the death of martyrdom, and their ashes were swept away by the wind; but these were not lost, for they became seeds, which were germinating in the fields during the passage of the barbarians, although nothing at that time was seen of them.

After an historical period the Rhine became linked with the marvellous. Where the noise of man is hushed, Nature lends a tongue to the nest of birds, causes the caves to whisper, and the thousand voices of solitude to murmur; where historical facts cease, imagination gives life to shadows and realities to dreams. Fables took root, grew, and blossomed in the voids of History, like weeds and brambles in the crevices of a ruined palace.

Civilization, like the sun, has its nights and its days, its plenitudes and its eclipses; now it disappears, but soon returns.

As soon as civilization again dawned upon Taunus, there were upon the borders of the Rhine a whole host of legends and fabulous stories. Populations of mysterious beings, who inhabited the now dismantled castles, had held communion with the *belles filles* and *beaux chevaliers* of the place. Spirits of the rocks; black hunters, crossing the thickets upon stags with six horns; the maid of the black fen; the

six maidens of the red marshes; Wodan, the god with ten hands; the twelve black men; the raven that croaked its song; the devil who placed his stone at Teufelstein and his ladder Teufelsleiter, and who had the effrontery to preach publicly at Gernsbach, near the Black Forest, but, happily, the Word of God was heard at the other side of the stream; the demon, Urian, who crossed the Rhine at Dusseldorf, having upon his back the banks that he had taken from the sea-shore, with which he intended to destroy Aix-la-Chapelle, but being fatigued with his burden, and deceived by an old woman, he stupidly dropped his load at the imperial city, where that bank is at present pointed out, and bears the name of Loosberg. At that epoch, which for us was plunged into a penumbra, when magic lights were sparkling here and there, when the rocks, the woods, the valleys, were tenanted by apparitions; mysterious encounters, infernal castles, melodious songs sung by invisible songstresses; the frightful bursts of laughter emanating from mysterious beings,—these, with a host of other adventures, shrouded in impossibility, and holding on by the heel of reality, are detailed in the legends.

At last these phantoms disappear as dawn bursts in upon them. Civilization again resumed its sway, and fiction gave place to fact. The Rhine assumed another aspect: abbeys and convents increased; churches were built along the banks of the river. The ecclesiastic princes multiplied the edifices in the Rhingau, as the prefects of Rome had done before them.

The Sixteenth Century approached: in the Fourteenth the Rhine witnessed the invention of artillery; and on its bank, at Strasbourg, a printing-office was first established. In 1400 the famous cannon, fourteen feet in length, was cast

at Cologne; and in 1472 Vindelin de Spire printed his Bible. A new world was making its appearance; and, strange to say, it was upon the banks of the Rhine that those two mysterious tools with which God unceasingly works out the civilization of man,—the catapult and the book—war and thought,—took a new form.

The Rhine, in the destinies of Europe, has a sort of providential signification. It is the great moat which divides the north from the south. The Rhine for thirty ages, has seen the forms and reflected the shadows of almost all the warriors who tilled the old continent with that share which they call sword. Cæsar crossed the Rhine in going to the south; Attila crossed it when descending to the north. It was here that Clovis gained the battle of Tolbiac; and that Charlemagne and Napoleon figured. Frederick Barbarossa, Rudolph of Hapsbourg, and Frederick the First, were great, victorious, and formidable when here. For the thinker, who is conversant with History, two great eagles are perpetually hovering over the Rhine—that of the Roman legions, and that of the French regiments. The Rhine—that noble flood, which the Romans named *Rhenus superbus*, bore at one time upon its surface bridges of boats, over which the armies of Italy, Spain, and France poured into Germany, and which, at a later date, were made use of by the hordes of barbarians when rushing into the ancient Roman world: at another, on its surface it floated peaceably the fir-trees of Murg and St. Gall, the porphyry and the marble of Bale, the salt of Karlshall, the leather of Stromberg, the quicksilver of Lansberg, the wine of Johannisberg, the slates of Coab, the cloth and earthenware of Wallendar, the silks and linens of Cologne. It majestically performs its double function of

flood of war and flood of peace, having, without interruption, upon the ranges of hills which embank the most notable portion of its course, oak-trees on the one side and vine-trees on the other—signifying strength and joy.

For Homer the Rhine existed not; for Virgil it was only a frozen stream—*Frigiora Rheni;* for Shakespeare it was the "beautiful Rhine"; for us it is, and will be to the day when it shall become the grand question of Europe, a picturesque river, the resort of the unemployed of Ems, of Baden, and of Spa.

THE SEINE

A. BOWMAN BLAKE

FEW persons outside of France have any acquaintance with, or knowledge of, the rare beauties of Seine scenery. The river has thus far escaped the vulgarity of becoming a common tourist's high-road. The general impression is current that the Seine, being destitute of the legendary romance of the vine-clad Rhine, the vivid and somewhat spectacular scenic effects of the Italian lakes, or even the lawn-like finish of the Thames, offers no attractions to either amateur or tourist. This opinion only proves the falsity of opinion based upon superficial knowledge. From the artistic point of view, perhaps, no other one river in Europe possesses a character of scenery so preëminently beautiful, or so replete with the charm of contrast, or rich in variety; for the picturesque portions of the noble river are by no means confined to the grandeur and wildness of the Fontainebleau forests, or of the animated quays and crumbling Mediæval houses of the ancient city of Rouen. To one in search of scenes which shall unite the charms of beautiful river scenery with the added note of pastoral and village rusticity, almost every turning of the river will reveal a mine of wealth. It is a characteristic of the scenery of the Seine that it is eminently sketchable at almost every point. For it is more than a purely picturesque, it is an essentially poetic river. A conclusive proof of its superiority in point of artistic resources and suggestivement



THE SEINE

is, perhaps, that no other European river scenery has had so overwhelming an influence upon modern Art. During the past forty years, in which the Seine and its tributaries have been the principal camping-ground of the best French landscape-painters, the peculiarities of its scenery, and the features of its rustic life, have formed the taste, and developed a wholly original mode of treatment of *genre* and landscape in the modern French school. The two principal characteristics of the scenery of the Seine are its naturalness, and its possessing in the highest degree that individuality which marks its landscapes as distinctively French. The Seine could never be mistaken at any point for other than a French river. The Parisian masters, in transferring to their canvasses the peculiarities of the river and shore aspects, have produced a school of landscape as essentially national in character as that which marks the Dutch and Flemish masterpieces of two hundred years ago. The low wide meadows, the stately poplars, the reedy shores, and the delicate atmosphere which veils the jumble of roofs, and the quaint towers and turrets that are lanced from the Seine shores, have already become as familiar features of modern French landscape, as the cone-shaped hills of Flanders and the flat windmill-dotted fields of Holland, which makes the character of the landscape in Dutch and Flemish canvasses.

I have spoken of the naturalness of the Seine landscape. It is this which makes its lasting charm. Along these banks Nature neither rises to the sublime nor does she appear in too wild or dishevelled a state. There is a happy blending of the cultivated and the uncultivated, of course tamed and yet enjoying the wilder *abandon* of freedom. Nowhere are the scenes too grand or too wide for the pencil; the hills suggest, but do not attain, the majestic; the

wide, flat fields and the long stretches of meadows are broken into possible distances by a gently sloping ground, or an avenue of tall poplars. The villages and farm-houses dotted along its banks wear a thoroughly rustic air; the villas and *châteaux* crowning its low hills become naturally a part of the landscape by their happy adaptation, architecturally, to the character of their surroundings; while the not infrequent ruins of monastery or ancient castle group charmingly with the fluffy foliage and dense shrubbery.

Perhaps the impressionist's most ideal landscape would be found among the villages of the upper Seine, that part of the Seine which flows between Fontainebleau and Rouen, as beyond Rouen the river takes on a stronger and bolder character both in its breadth and in the quality of its scenery.

First in point of beauty among the villages contiguous to Fontainebleau, is Grètz, a little village not directly upon the Seine, but upon its tributary, the Loing. Grètz can be reached in an hour's drive from the town or palace of Fontainebleau. This charming village must have grown here, close to the low sweet level of the winding river's banks, with a view to its being sketched. Not a feature necessary to the making of a picture is wanting. The village street lies back some distance from the shore, the backs of the houses fronting on the river, the village and river life made one by the straggling rose, fruit, and vegetable gardens running down between their high stone-wall enclosures to the very edges of the swiftly flowing streams. As one views the village from the mid-stream, one has the outlined irregularity of the village houses limned against the sky. To the right, between the tall grenadier-like poplars, or the higher branches of the willow, rises a beautiful group of old

buildings; the blue spaces of the sky are seen through the arches and ruins of the old *château* of La Reine Blanche, that queen having made, centuries ago, Grètz her dwelling place. The massive, simple lines of the castle's Norman tower contrast finely with the belfry of the still more ancient church close beside it, the dark façades of these old buildings being relieved by the gay touches of colour upon the adjacent houses. A queer old bridge appears to leap directly from the very courtyard of the *château* to the opposite shore, and on the bridge is constantly moving some picture of rustic life, peasants with loads of grapes or fagots, a herd of oxen laboriously dragging the teeming hay-cart, a group of chattering villagers, or the shepherd leading his flock to richer pastures. The river banks themselves are not wanting in the beauty of human activity. In the gardens, as our boat drifted along the banks, were half-a-dozen bent old women weeding, sowing, and plucking. Farther down, beyond the bridge, is the washerwomen's stand, the bare arms, short skirts, and gay kerchiefs of these sturdy peasant women, with the bits of colour their home-spun linens yield, making delightful contrasts with the delicate arabesques which light foliage made against the sky.

The upper valley of the Seine, that portion of the river lying between Paris and Rouen, seems at a first glance to be a country as sterile in artistic resources as it is interesting to the average tourist. But the French artist, so far from finding the flat, wide stretches of field and meadow, the scanty foliage, and the scattered group of farm-houses which border the river banks, either too prosaic or too trite for his pencil, has discovered from a close study of this apparently common-place valley scenery a new feature of landscape beauty. This feature has been the present original treat-

ment of the flat surfaces of ground and of large sunlit spaces. The character of all this valley scenery may be summed up in a few words; tilled fields running down to the water's edge; wild uncultivated fields and rank dank meadows, their flatness broken here and there by a clustering group of low shrubbery, by rows of the slim, straight French poplars, or an avenue of stunted, bulbous-trunk willows, with their straight, reed-like branches. The entire landscape has but two lines, the horizontality of the meadows and the perpendicular uprising of the trees, except that far off in the distance run the waving outlines of the hills of Normandy. Such is the aspect of the country in which some of the first among contemporaneous French artists have found new sources of inspiration. Those wide, sunlit meadows, breathing the rich luxuriance of nature in undisturbed serenity; the golden spaces of the air shimmering like some netted tissue between tree and tree; the shadows cast by a single tree across the length of the field; an intimate knowledge and study of this landscape have taught the French brush the secret of its power in painting a flat picture, and in wresting from sunlight the glory of its gold. The peculiar qualities of the atmosphere at certain seasons of the year make the Seine valley entrancing, especially to Art Students. In the spring, nothing can exceed the delicacy, purity and fineness of the colouring of the foliage, and the tones of light are marvellous in their dainty refinement and suggestiveness. Nature seems to be making a sketch in outline of a picture, which summer is to fill in, so pure are the outlines of foliage and landscape in that wonderful medium of delicately coloured ether. In summer, sunlight fairly drenches the fields. Autumn colours, also, here seem richer, firmer, more glowing than in

other parts of France, and the October twilights in their brilliance and duration approach an American tint.

The first breaks in the monotony of the valley scenery are the approaches to, and the immediate suburbs about, Rouen. The river banks just below are particularly picturesque. The river between Rouen and La Bouille assumes a character different from that which marks it above a city. It was my special good fortune to traverse this portion sometime before sunrise. We left the city behind us masked in grey mist, only the iron *flèche* of the cathedral piercing the cottony wrappings. On the motionless Seine not a ripple was astir, and the morning fog held leaves and trees in a close, breathless embrace. But at Croisset, with the shooting of the sun above the horizon came the melting hues and freshening breath of morning. As the clouds, slowly rolled apart, gave us glimpses of the magnificent panorama of Rouen set in its circlet of hills, the effect was that of the gradual lifting of a drop-curtain upon some fine scenic landscape. The river itself was a jewel of colour, reflecting the faintly tinted shipping along the wharves, the rich emerald of the trees, and the shadowy grasses along the shore. The steamer on its way steers in and out among a hundred little islands which give a magical effect of enchantment, so fairy-like and exquisite are their shapes and forms. With Croisset, Hautot, Loquence, and Sahurs, the majesty of the Rouen quays, wharves, spires, and cathedral towers gives place to the richer, softer beauty of rural village loveliness. But the most beautiful picture greeted our eyes as we approached La Bouille, which is picturesquely set against the greenery of a hilly back-ground, its bright, light-coloured houses so close to the water's edge that the river was like a broken rainbow of colour, reflecting their

tints in its ripples. Across the river was a magnificent expanse of meadow and tilled field, with a poplar now and then to serve as a sentinel guarding the bursting grain. The banks of the river are delightfully diversified by clusters of old thatched farm-houses, spreading fishing-nets, and old boats moored in tiny creeks. As we passed the last of the village houses, there were some wonderful effects of light and colour; all the confused indecision of light scurrying clouds piled above the meadows; the uncertain vagueness of a mist rolling still, like the skirts of a fleecy robe, over the distant river bends; and immediately above us the warmth, brilliance, and goldenness of sunrise in its early splendour. Couched amidst the mysterious shade of some dense foliage was the bending form of an old woman, filling her pitcher at the river-side, scarlet kerchiefed and dun skirted. Off in the grey distance was the figure of a peasant woman carrying her child upon her back, her tall, straight form magnified into strange attitude by the misty atmosphere. A brush capable of strong handling, and an eye trained to seize the more fleeting beauties of nature, would have found in this La Bouille picture a poem of colour and tenderness.

I have already mentioned the naturalness of the rustic life of the Seine fields and farm-houses. The sturdy simplicity of the Normandy peasant is his well-known characteristic. The farmers at the plough, the fishermen mending their nets, the shepherd tending his flocks, are not the least poetic of the elements which make the charm of this river scenery. There reigns here an Arcadian calm, a certain patriarchal simplicity. The complicated ingenuities and labour-saving machines of modern invention have not as yet become the fashion among the Normandy

peasant-farmers, and thus every agricultural implement, seen out-of-doors, seems available for an artist's purpose. The ploughs are marvels of ancient construction; oxen and horses are harnessed in ways known only to those who have learned the science as a secret handed down from sire to son; and carts, threshing-machines, rakes, and hoes have an air of venerability that matches well with the old gabled houses and worn rustic dress of the farmers. It is this aspect of age which imparts such beautiful low tones of colour to the pictures of human life along these shores. There are no flaring, flashing hues, no brilliant dashes of colour; instead, the tones of landscape, sky, atmosphere, and the human life blend in a beautiful harmony of soft low tints. In matters of toilet, the Normandy peasant's taste is perfect. The farmers wear blouses of dark, sober blues; the women short skirts of dull green, brown or home-spun grey; their aprons are snuff-colour or lilac, and their close-fitting embroidered cap, or the coloured kerchief tied over their heads, brings into admirable relief their brilliant complexions, strong prominent features, and flaxen tresses.

In that morning's journey from Rouen to Havre we enjoyed a delightful variety of out-door life. In the early sunrise hours there were visible the first symptoms of the farm-house in early rising. The farmer was seen striding over the dew-wet meadows to open barns or to drive forth the cattle; women were busy milking, and the children trudging to the river with pails and pitchers to be filled. Later, the fields were alive with the ploughmen's cries, and men and women were starting out, rakes and scythes in hand, for their day's work; children stood up to their chins in the yellow grain, in the midst of the scarlet *coquelicots* and

the star-eyed daisies. Towards noon there was a pretty picture of a farmer wheeling along the river bank a huge load of green grass, atop of which were seated two round, moon-faced children whose laps and hands were full of the brilliant field-flowers. Behind them walked the mother with a rake slung over her shoulder, her short skirts and scant draperies permitting a noble freedom of step and movement, her head poised as only the head of a woman used to the balancing of heavy burdens is ever held. Hers was altogether a striking figure, and the brush of Vollen or of Breton would have seized upon her to embody the type of one of his rustic beauties, whose mingled fierceness and grace make their peasants the rude goddesses of the plough.

One of the chief charms of the Seine scenery is the variety and contrast its shores present. One passes directly from the calm and the rural naturalness of sloping meadows fringed with osiers, willows, and poplars, to the walled quays of Caudebec, with its spires, broad avenues, and garden-enclosed houses. Caudebec is characterized by an imposing *château* crowning its hillside, by beautiful gardens, terraces, its long row of "striped" houses stretching along its quays, and the beauty of its cathedral spire rising above the tree-trops.

Perhaps Villequier may be said to be the culminating point of beauty upon the Seine. Here the river seems only like a large lake, a fact which invests the landscape with its noble uprising hills and the beautiful, thickly wooded spurs of the hillocks, with something of the rounded finished aspect which belongs to lake scenery. The lovely village of Villequier itself peeps in and out of its encompassing trees as if with a conscious air of coquetry. The bright, gaily coloured houses grouped upon the water's edge give a touch

of Italian brilliancy to the scene, while its fine *château* of Villequier and the old Gothic spire of the village church add the noble lines to the *ensemble*.

This bay of Villequier is the beginning of the bolder beauty of the Seine scenery. Its quieter aspects lie above Villequier. The artist in search of striking scenes and a rich variety of contrasts will find this part of the river afford fine material. On the way to Quillebœuf and Tancarville the shores of the river assume a hundred different aspects. There is the forest of Bretonne, the lovely valley of the Bolbec, the beautiful *château* of Etalan, and the ruins of the Twelfth Century church. Quillebœuf itself stands boldly out into the river, perched upon a spur of rising ground, and is, perhaps, the most pretentious town upon the Seine. After Quillebœuf and Tancarville the loftier hills and thickly wooded shores of the river give place to wide, flat marshes and open valleys. The marshes just beyond Quillebœuf are, to our taste, its most distinguishing beauty; they run directly out to the most distant points of the horizon, and the rich yellow-green grass, with its brilliant bouquets of wild flowers scattered profusely over the flat treeless surface, makes a kaleidoscope of colour under the broad unbroken splendour of the noon-day sun. Cattle in large herds, horses, and sheep, pasture upon the rich meadows, so that the animal-painter finds here a superb landscape for the setting of his ruminating cows, fleecy sheep, or wild unbridled colts.

Just beyond these meadows the Seine loses all the character of a river. It has assumed, before its final plunge into the ocean, the turbulent, tumultuous aspect of a small sea, and like a lover wearing his lady's colours, the river turns to the deeper greys and colder blues of the sea's dark

tint. The boat stops long enough at the wonderful old seaport town of Honfleur for one to catch a glimpse of its quaint turreted houses, its crooked narrow streets, its wharves with their picturesque assemblage of lateen-shaped sails. Then Havre is reached, and with those swarming quays and bright pebbly shores the Seine is lost in the great Atlantic.

THE GANGES

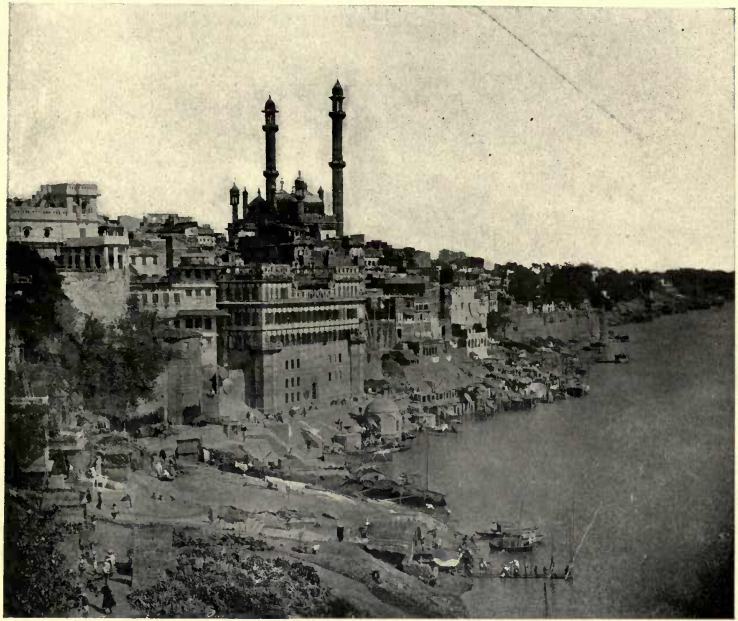
SIR WILLIAM W. HUNTER

OF all great rivers on the surface of the globe, none can compare in sanctity with the Ganges, or Mother Gangá, as she is affectionately called by devout Hindus. From her source in the Himálayas, to her mouth in the Bay of Bengal, her banks are holy ground. Each point of junction of a tributary with the main stream has its own special claims to sanctity. But the tongue of land at Allahábád, where the Ganges unites with her great sister river the Jumna, is the true *Prayág*, the place of pilgrimage whither hundreds of thousands of devout Hindus repair to wash away their sins in her sanctifying waters. Many of the other holy rivers of India borrow their sanctity from a supposed underground connection with the Ganges. This fond fable recalls the primitive time when the Aryan race was moving southward with fresh and tender recollections of the Gangetic plains. It is told not only of first-class rivers of Central and Southern India, like the Narbadá, but also of many minor streams of local sanctity.

An ancient legend relates how Gangá, the fair daughter of King Himálaya (Himávat) and of his queen, the air-nymph Menaka, was persuaded, after long supplication, to shed her purifying influence upon the sinful earth. The icicle-studded cavern from which she issues is the tangled hair of the god Siva. Loving legends hallow each part of her course; and from the names of her tributaries and of

the towns along her banks, a whole mythology might be built up. The southern offshoots of the Aryan race not only sanctified their southern rivers by a fabled connection with the holy stream of the north. They also hoped that in the distant future, their rivers would attain an equal sanctity by the diversion of the Ganges waters through underground channels. Thus, the Bráhmans along the Narbadá maintain that in this iron age of the world (indeed, in the year 1894 A. D.) the sacred character of the Ganges will depart from her now polluted stream, and take refuge by an underground passage in their own Narbadá river.

The estuary of the Ganges is not less sacred than her source. Ságar Island at her mouth is annually visited by a vast concourse of pilgrims, in commemoration of her act of saving grace; when, in order to cleanse the 60,000 damned ones of the house of Ságar, she divided herself into a hundred channels, thus making sure of reaching their remains with her purifying waters, and so forming the delta of Bengal. The six years' pilgrimage from her source to her mouth and back again, known as *pradak-shina*, is still performed by many; and a few devotees may yet be seen wearily accomplishing the meritorious penance of "measuring their length" along certain parts of the route. To bathe in the Ganges at the stated festivals washes away guilt, and those who have thus purified themselves carry back bottles of her water to their kindred in far-off provinces. To die and be cremated on the river bank, and to have their ashes borne seaward by her stream, is the last wish of millions of Hindus. Even to ejaculate "Gangá, Gangá, at the distance of one hundred leagues from the river," said her more enthusiastic devotees, might atone for the sins committed during three previous lives.



THE GANGES

The Ganges has earned the reverence of the people by centuries of unfailing work done for them. She and her tributaries are the unwearied water-carriers for the densely-peopled provinces of Northern India, and the peasantry reverence the bountiful stream which fertilizes their fields and distributes their produce. None of the other rivers of India comes near to the Ganges in works of beneficence. The Brahmaputra and the Indus have longer streams, as measured by the geographer, but their upper courses lie beyond the great mountain wall in the unknown recesses of the Himálayas.

Not one of the rivers of Southern India is navigable in the proper sense. But in the north, the Ganges begins to distribute fertility by irrigation as soon as she reaches the plains, within 200 miles of her source, and at the same time her channel becomes in some sort navigable. Thenceforward she rolls majestically down to the sea in a beautiful stream, which never becomes a merely destructive torrent in the rains, and never dwindles away in the hottest summer. Tapped by canals, she distributes millions of cubic feet of water every hour in irrigation; but her diminished volume is promptly recruited by great tributaries, and the wide area of her catchment basin renders her stream inexhaustible in the service of man. Embankments are in but few places required to restrain her inundations, for the alluvial silt which she spills over her banks affords in most parts a top-dressing of inexhaustible fertility. If one crop be drowned by flood, the peasant comforts himself with the thought that the next crop from his silt-manured fields will abundantly requite him.

The Ganges has also played a preëminent part in the commercial development of Northern India. Until the

opening of the railway system, from 1855 to 1870, her magnificent stream formed almost the sole channel of traffic between upper India and the seaboard. The products not only of the river plains, but even the cotton of the Central Provinces, were formerly brought by this route to Calcutta. Notwithstanding the revolution caused by the railways, the heavier and more bulky staples are still conveyed by the river, and the Ganges may yet rank as one of the greatest waterways in the world.

The value of the upward and downward trade of the interior with Calcutta, by the Gangetic channels, may be taken at about 400,000,000 of rupees per annum, of which over 153,000,000 go by country-boats, and nearly 240,000,000 by steamers (1891). This is exclusive of the seaborne commerce. But the adjustments which have to be made are so numerous that the calculation is an intricate one. As far back as 1876, the number of cargo boats registered at Bámanghâta, on one of the canals east of Calcutta, was 178,627; at Hugli, a river-side station on a single one of the many Gangetic mouths, 124,357; and at Patna, 550 miles from the mouth of the river, the number of cargo boats entered in the register was 61,571. The port of Calcutta is itself one of the world's greatest emporia for sea and river-borne commerce. Its total exports and imports landward and seaward amounted in 1881 to about 1,400,000,000 of rupees (Rx. 140,000,000) and to 1,523,000,000 of rupees (Rx. 152,363,583) in 1891.

Articles of European commerce, such as wheat, indigo, cotton, opium, and saltpetre, prefer the railway; so also do the imports of Manchester piece goods. But if we take into account the vast development in the export trade of oil-seeds, rice, etc., still carried by the river, and the grow-

ing interchange of food-grains between interior districts of the country, it seems probable that the actual amount of traffic on the Ganges has increased rather than diminished since the opening of the railways. At well-chosen points along her course, the iron lines touch the banks, and these river-side stations form centres for collecting and distributing the produce of the surrounding country. The Ganges, therefore, is not merely a rival, but a feeder of the railway. Her ancient cities, such as Allahábád, Benares, and Patna, have thus been able to preserve their former importance; while fishing villages like Sahibganj and Goalanda have been raised into thriving river marts.

For, unlike the Indus and the Brahmaputra, the Ganges is a river of great historic cities. Calcutta, Patna, and Benares are built on her banks; Agra and Delhi on those of her tributary, the Jumna; and Allahábád on the tongue of land where the two sister streams unite. Many millions of human beings live by commerce along her margin. Calcutta, with its suburbs on both sides of the river, contains a population of nearly a million. It has a municipal revenue of four and one-fourth millions of rupees; a sea-borne and coasting commerce in 1891 of 770,000,000 of rupees, with a landward trade of over 750,000,000. These figures vary from year to year, but show a steady increase. Calcutta lies on the Hugli, the most westerly of the mouths by which the Ganges enters the sea. To the eastward stretches the delta, till it is hemmed in on the other side by the Meghná, the most easterly of the mouths of the Ganges. More accurately speaking, the Meghná is the vast estuary by which the combined waters of the Brahmaputra and Gangetic river-systems find their way into the Bay of Bengal.

MORNING ON THE GANGES

PIERRE LOTI

NEARLY all the streets lead to the Ganges, where they grow wider and become less gloomy. Here, suddenly, the magnificent palaces and all the brightness of the day dawn upon us.

These massive tiers of steps, which stretch along the banks and reach to the water's edge even in these times of drought, where fallen temples emerge from their slimy bed, were made in honour of the Ganges, and on each landing there are little granite altars, shaped like niches, in which diminutive gods are placed. These images are like those of the temples, but they are of more massive construction, so as to withstand the swirl of the waters which cover them during the annual rains.

The sun has just risen from the plain through which old Ganges wanders, a plain of mud and vegetation still overshadowed by the mists of night; and waiting there for the first red rays of dawn lie the granite temples of Benares, the rosy pyramids, the golden shafts, and all the sacred city, extended in terraces, as if to catch the first light and deck itself in the glory of the morning.

This is the hour which, since the Brahmin faith began, has been sacred to prayer and to religious ecstasy, and it is now that Benares pours forth all its people, all its flowers, all its garlands, all its birds, and all its living things on to the banks of the Ganges. Awakened by the kiss of the sun, all that have received souls from Brahma rush joyously

down the granite steps. The men, whose faces beam with calm serenity, are garbed in Kashmir shawls, some pink, some yellow, and some in the colours of the dawn. The women, veiled with muslins in the antique style, form white groups along the road, and the reflection from their copper ewers and drinking vessels shimmer amongst the silvery glints of their many bracelets, necklets, and the rings which they wear round their ankles. Nobly beautiful both of face and gait, they walk like goddesses, while the metal rings on their arms and feet murmur musically.

And to the river, already encumbered with garlands, each one comes to offer a new wreath. Some have twisted ropes of jasmine flowers which look like white necklets, others garlands of Indian pinks whose flowers of golden yellow and pale sulphur gleam in contrast, resembling the changing colours of an Indian veil.

And the birds that had been sleeping all along friezes of the houses and the palaces awake too and fill the air with chirpings and with song in the mad joy of dawn.

In all the temples the gods have their morning serenades, and the angry roar of the tom-toms, the wail of the bagpipes, and the howling of the sacred trumpets, are heard from every side.

Naked children holding each other by the hand come in gay throngs; yoghis and slowly-moving fakirs descend the steps; the sacred cattle advance with deliberate steps, while people stand respectfully aside offering them fresh wreaths of reeds and flowers. They, too, seem to look on the splendours of the sun, and in their harmless fashion appear to understand and pray.

Next come the sheep and goats; then dogs and monkeys hurry down the steps.

All the granite temples scattered on the steps that serve as niches and altars, some for Vishnu, some for the many-armed Ganesa, protrude into the sunlight their squat little gods—gods which are grey with mud, for they have slept many months under the troubled waters of the river to which the ashes of the dead are consigned.

Now that the rays of the sun are fierce the people shelter under large umbrellas whose shade awaits them. For these huge parasols, which resemble gigantic mushrooms clustering under the walls of the city, are always left open.

The many rafts and the lower steps are thronged with Brahmins, who, after setting down their flowers and ewers, hasten to disrobe. Pink and white muslins and cashmeres of all colours lie mingled on the ground, or are hung over bamboo canes, and now the matchless nude forms appear, some of pale bronze, others of a deeper shade.

The men, slim and of athletic build, plunge to their waists into the sacred waters. The women, still wearing a veil of muslin round their shoulders and waists, merely plunge their many-ringed arms and ankles into the Ganges; then they kneel at the extremest edge and let fall their long unknotted coils of hair into the water. Then, raising their heads once more, they allow the water dripping from their drenched hair to fall upon their necks and bosoms. And now with their tightly-clinging draperies they look like some statue of a "winged Victory," more beautiful and more voluptuous than if they had been nude.

From all sides the bowing people shower their garlands and their flowers into the Ganges; all fill their ewers and

jars and then, stooping, fill their hollowed hand and drink. Here religious feeling reigns supreme, and no sensual thought ever seems to assail these beauteous mingled forms. They come into unconscious contact with each other, but only heed the river, the sun, and the splendour of the morning in a dream of ecstasy. And when the long ritual is ended, the women retire to their homes, while the men, seated on the rafts amid their garlands dispose themselves for prayer.

Oh! the joyful awakenings of this primeval race, praying in daily unison to God, where the poorest may find room amongst the splendours of the sun, the waters, and the flowers.

All the life of Benares centres round the river. People come from the palaces and jungles to die on its sacred banks, and the old and the sick are brought here by their families to await their end. The relatives never return to their homes in the country after the death has taken place, and so Benares, which already contains three hundred thousand inhabitants, increases rapidly in size. For those who feel their end approaching this is the spot so eagerly desired.

Oh! to die at Benares. To die on the banks of the Ganges! To have one's body bathed for the last time, and then to have one's ashes strewn into the river!

THE COLORADO

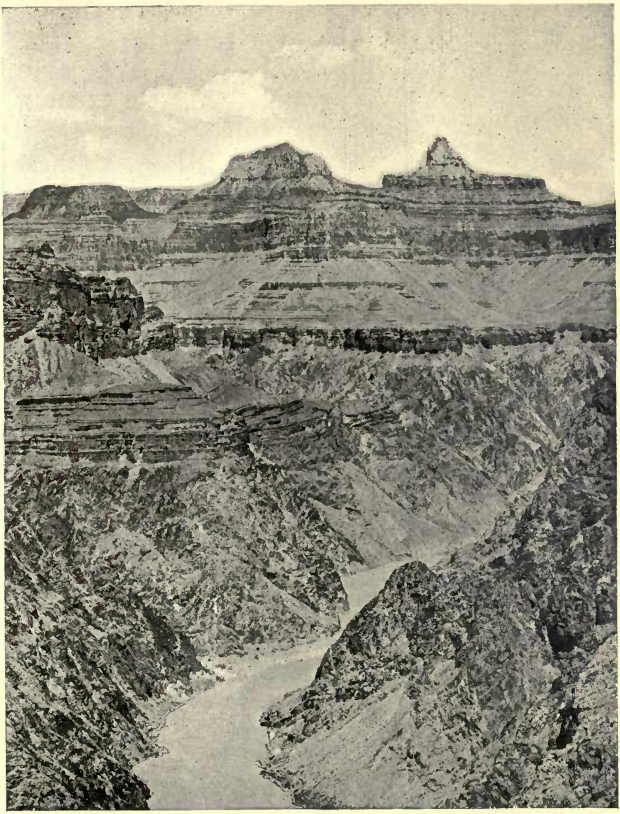
HENRY GANNETT

THE country drained by the Colorado River is a peculiar region. It is a country of plateaus and cañons, the plateaus mainly arid and sterile, where the few streams flow in deep gorges far below the surface.

The longest and most northern branch of the Colorado is Green River, which heads in the Wind River Mountains, against the sources of the Bighorn and Snake Rivers. This stream, in its long course towards the south, receives the waters of the Uinta from the west, and the Yampa and White Rivers from the east. Near latitude 38° 15′ and longitude 110° it is joined by Grand River, a stream of nearly equal size, which heads in Middle Park, Colorado, drawing its first supplies of water from the snowfields of Long Peak. The stream below the junction of these two forks is known as the Colorado.

Below their junction, the principal branches of the Colorado from the east are the San Juan, the Colorado Chiquito, Williams Fork, and the Gila; on the west, the "Dirty Devil," Paria, and Virgin.

This region is limited on the east, north, and north-west by high mountain ranges. Its surface is nearly flat, but by no means unbroken. There is little rolling or undulating country. Changes of level take place by very gentle, uniform slopes, or by abrupt, precipitous steps. A large part of the surface consists of bare rocks, with no soil or vegetation. A part is covered with a thin sandy soil, which



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THE COLORADO

supports a growth of sage and cacti, or even a few pinon pines and cedars. The only vegetation is that characteristic of an arid country.

This aridity has modified orographic forms to an astonishing degree. Where, under different climatic conditions, there would be produced a region similar in most respects to the prairies of the Mississippi valley, we find a country, flat indeed, or inclined at low angles, but one whose watercourses are far beneath the general level, deep down in cañons, hundreds, thousands of feet beneath the surface.

Great cliffs, thousands of feet in height, and extending like huge walls for hundreds of miles, change the level of the country at a single step.

Isolated buttes and mesas, of great height, are scattered over the plateaus, indicating the former height of the plain of which they formed parts.

"The landscape everywhere, away from the river, is of rock—cliffs of rock, tables of rock, terraces of rock, crags of rock—ten thousand strangely carved forms. Rocks everywhere, and no vegetation: no soil, no land. When speaking of these rocks, we must not conceive of piles of boulders, or heaps of fragments, but a whole land of naked rock, with giant forms carved on it; cathedral-shaped buttes, towering hundreds or thousands of feet; cliffs that cannot be scaled, and cañon walls that shrink the river into insignificance, with vast hollow domes and tall pinnacles, and shafts set on verge overhead, and all highly coloured—buff, grey, red, brown, and chocolate; never lichened, never moss-covered, but bare and often polished."

The above description by Major J. W. Powell, who has explored the cañons of the Colorado, gives a graphic

pen-picture of the lower and more arid plateaus of this region.

Nearly every watercourse, whether the stream be perennial or not, is a cañon; a narrow valley, with precipitous walls. In many cases, these cañons are so numerous that they cut the plateau into shreds—a mere skeleton of a country. Of such a section Lieutenant Ives, who explored the course of lower Colorado, writes: "The extent and magnitude of the system of cañons in that direction is astounding. The plateau is cut into shreds by these gigantic chasms, and resembles a vast ruin. Belts of country, miles in width, have been swept away, leaving only isolated mountains standing in the gap; fissures so profound that the eye cannot penetrate their depths are separated by walls whose thickness one can almost span; and slender spires, that seem tottering on their base, shoot up a thousand feet from vaults below."

But few of these cañons contain water throughout the year. Most of them are dry at all times, excepting for a few days in the early spring, or for a few minutes or hours at most after a heavy shower. It is characteristic of Western North America, as of all arid countries, that the streams, away from their sources in the mountains, lose water, rather than gain it, in traversing the lower country. The dry atmosphere and the thirsty soil absorb it, and, in many cases, large streams entirely disappear in this way. This is the case to a great extent in the plateau country, and still more so in the Great Basin, where these are the only outlets to the drainage.

Those who have long and carefully studied the Grand Cañon of the Colorado do not hesitate for a moment to pronounce it by far the most sublime of all earthly spectacles.

If its sublimity consisted only in its dimensions, it could be sufficiently set forth in a single sentence. It is more than 200 miles long, from five to twelve miles wide, and from 5,000 to 6,000 feet deep. There are in the world valleys which are longer and a few which are deeper. There are valleys flanked by summits loftier than the palisades of the Kaibab. Still the Grand Cañon is the sublimest thing on earth. It is not alone by virtue of its magnitudes, but by virtue of the whole—its *ensemble*.

The space under immediate view from our stand-point, fifty miles long and ten to twelve wide, is thronged with a great multitude of objects so vast in size, so bold yet majestic in form, so infinite in their details, that as the truth gradually reveals itself to the perceptions it arouses the strongest emotions. Unquestionably the great, the overruling feature is the wall on the opposite side of the gulf. Can mortal fancy create a picture of a mural front a mile in height, seven to ten miles distant, and receding into space in either direction? As the mind strives to realize its proportions its spirit is broken and its imagination completely crushed. If the wall were simple in its character, if it were only blank and sheer, some rest might be found in contemplating it; but it is full of diversity and eloquent with grand suggestions. It is deeply recessed by alcoves and amphitheatres receding far into the plateau beyond, and usually disclosing only the portals by which they open into the main chasm. Between them the promontories jut out ending in magnificent gables with sharp mitred angles. Thus the wall rambles in and out, turning numberless corners. Many of the angles are acute, and descend as sharp spurs like the forward edge of a ploughshare. Only those alcoves which are directly opposite to us can be seen in their

full length and depth. Yet so excessive, nay, so prodigious, is the effect of foreshortening, that it is impossible to realize their full extensions.

Numerous detached masses are also seen flanking the ends of the long promontories. These buttes are of gigantic proportions, and yet so overwhelming is the effect of the wall against which they are projected that they seem insignificant in mass, and the observer is often deluded by them, failing to perceive that they are really detached from the wall and perhaps separated from it by an interval of a mile or two.

At the foot of this palisade is a platform through which meanders the inner gorge, in whose dark and sombre depths flows the river. Only in one place can the water surface be seen. In its winding the abyss which holds it extends for a short distance towards us and the line of vision enters the gorge lengthwise. Above and below this short reach the gorge swings its course in other directions and reveals only a dark, narrow opening, while its nearer wall hides its depth. This inner chasm is 1,000 to 2,000 feet deep. Its upper 200 feet is a vertical ledge of sandstone of a dark rich brownish colour. Beneath it lies the granite of a dark iron-grey shade, verging towards black, and lending a gloomy aspect to the lowest deeps. Perhaps half a mile of the river is disclosed. A pale, dirty red, without glimmer or sheen, a motionless surface, a small featureless spot enclosed in the dark shade of the granite, is all of it that is here visible. Yet we know it is a large river, 150 yards wide, with a headlong torrent foaming and plunging over rocky rapids.

The walls of the Grand Cañon and the level of the plateau descend by a succession of great steps, produced

by faults, until the level of the river is reached at the mouth of the Grand Wash; and thus ends the Grand Cañon.

Below the Grand Wash, a dry stream bed which enters the Colorado from the north, the river turns south again and enters the Black Cañon of Lieutenant Ives report—a cañon which would be a remarkable feature were it not brought into such close juxtaposition with that described above.

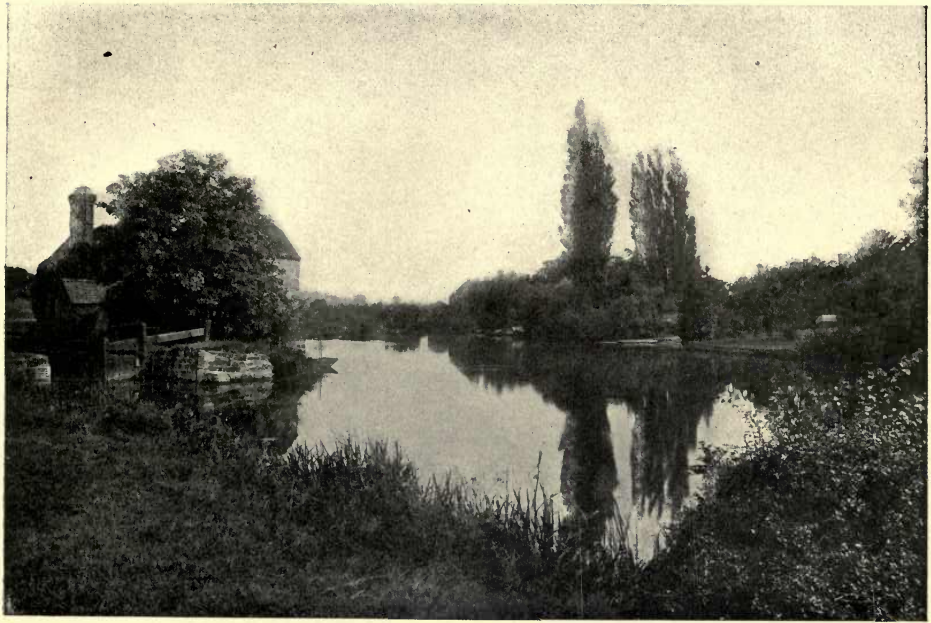
Below it the river runs in narrow valleys and low cañons to its mouth.

THE AVON

JOHN WILSON CROKER

THERE are Avons and Avons. Of course, Shakespeare's Avon is the famous stream which takes precedence of all others. It rises at Naseby, in the yard of a small inn near the church. So for two things is that village of Naseby renowned. A good many years ago a hospitable agriculturist, resident near Naseby, asked me to come over and see the battle-field and source of the Avon. I came and saw. The battle-field, truth to say, impressed me in no degree more than the river-head; I saw a quantity of ploughed land, undulating in true Northamptonshire fashion. Doubtless grim old Oliver and hot Prince Rupert saw a good deal more; and that heavy land is responsible for many oaths on the part of the prince, and prayers from the ever-prayerful lips of the Roundhead general. But Naseby field is very much like all the rest of Northamptonshire. There is not a hill in the country, or a brook that a boy cannot leap, or a church spire that a boy cannot throw a stone over, or enough level ground for a game of cricket. Yet it is a capital hunting county nevertheless.

Descending the Avon from Naseby, we pass through much dreary Northamptonshire scenery. At a village called Catthorpe, we are reminded of a certain poetaster named Dyer. Poetry was in a poor state when the author of *Grongar Hill* could be considered a poet. He was an amiable clergyman, who wrote mediocre verse; but Horace's opinion of such verse is peculiarly popular in the



THE AVON

present day. The first town of any consequence which the pedestrian reaches is Lutterworth; and concerning Lutterworth there is little to be said, except that Wicliffe was once its rector; and the ashes of the great reformer were disinterred by certain ecclesiastical vultures, and thrown into the brook which runs into the Avon at Lutterworth. So says Fuller, whom Wordsworth has followed: "This brook hath conveyed his ashes into Avon, Avon into Severn, Severn into the narrow seas, they into the main ocean. And thus the ashes of Wicliffe are the emblem of his doctrine, which now is dispersed all the world over."

The next town is Rugby; an immortal town, forever connected with the greatest of school-masters.

The scenery about Avon begins to improve near Newnham Regis; a small village, remarkable for having nothing of the church left except the tower. The rector of Church Lawford is also vicar of King's Newnham; and as the two villages cannot count five hundred inhabitants, we perhaps need not regret the destruction of the ancient church.

The city of Coventry lies not very far from the Avon. It is, I think, the dirtiest place in England, Bristol and Birmingham not excepted. In days gone by it had great fame, this *Coventria civitas;* and its earl, Leofric, who used to stride about his hall among his dogs,

> "His beard a foot before him, and his hair
> A yard behind,"

was a worthy ancestor of Lord Palmerston; and we all remember who wrote,

> 'I waited for the train at Coventry;
> I hung with grooms and porters on the bridge,
> To watch the three tall spires."

What strikes me in this city of Coventry—when I look at those noble spires, which Tennyson has immortalized (St. Michael's is second to Salisbury only), and at the splendid city-hall—is the wonderful change between the past and the present. It is now one of the most sordid and miserable towns in the empire. What generous and magnificent inhabitants must it have had when the spires of St. Michael's and Trinity were raised heavenwards! I'll be hanged if Godiva the beautiful would have

"Unclasped the wedded eagles of her belt"

for the present population of Coventry. I fear that among its makers of watches and ribbons there are goodly number of "low churls, compact of thankless earth."

The beauty of Avon begins where it enters the park of Stoneleigh Abbey, seat of Lord Leigh. The first baron, when Mr. Chandos Leigh, published some elegant poetry. His title to the estate was at one time questioned; and an inventive attorney produced a most marvellous case against him, accusing him and Lady Leigh of pulling down one side of Stoneleigh Church, to get rid of some genealogical testimony furnished by the Monuments, and of causing a huge stone to be dropped on some men who were engaged in building a bridge across the river Sow, it being important to suppress their evidence; I forget how many murders this lawyer (who very justly suffered imprisonment) charged against one of the gentlest and most amiable of men. Of the old abbey nothing is left but a gateway; and the great mansion of the Leighs, though doubtless magnificent and luxurious within, has no external beauty. But the park is redolent of *As you like it*. All this Warwickshire woodland breathes of Shakespeare. Under these stately oaks, the

noblest I have ever seen, beside this sparkling river, how sweet it were to moralize with melancholy Jaques, to while away the golden time with joyous Rosalind! As the traveller lies beneath a patrician tree, amid the magical noontide, well might he fancy the mellow voice of Amiens in the distance, cheering the banished Duke with music. Of Stoneleigh village I have only to say, that when last there I found it impossible to obtain a glass of ale; Lord Leigh having an objection to that wholesome liquid. An English village without ale is awful to think of.

Two miles through field and woodland, and we are at Kenilworth. Wise were the monks when they settled down in that green valley. Very quaint is the village that clusters round the old church; traditions of monastic and baronial times linger there; the exteriors of several of the antique houses made me wish to catch a glimpse of the interiors and their inhabitants, which I was not lucky enough to do. They are just the sort of houses where a good dinner and a bottle of rare port is the order of the day. The end of the village near the church is quite another affair; instead of seeming coeval with the castle and the priory, it appears to have sprung up simultaneously with the railway-station. Extremes meet at Kenilworth: in these modern villas you would expect to find no inhabitant less active than a commercial traveller; in the old houses at the other end you would hardly be startled by an interview with Sir Walter Raleigh or rare Ben Jonson.

Of course I ought to describe Kenilworth Castle; but I cannot do it, that's a fact; besides which, the thing has been done a hundred times. It is a glorious ruin; and as one lies on the turf on a summer day in the shadow of its grey stonework, watching the flying clouds, and the choughs

in the ivy, and the little river shimmering through the meadows, and the immoveable old towers decaying in their stately strength, there descends upon the spirit a mystic and unutterable feeling, worth more than all the poetry ever written, ay, or all the claret ever pressed from Bordeaux grapes.

Avon winds back into Stoneleigh Park after leaving Kenilworth, and passes the little village of Ashow, where I tasted the juiciest mulberries I ever ate,—blood-ripe as those wherewith the laughing Naiad Ægle stained the temples of Silenus. Cool and peaceful is that pleasant village, where Avon murmurs softly amid reedy islets. Passing onward, we see a cross upon a wooded hill: there poor Piers Gaveston was beheaded, some five centuries and a half ago. There is a capitally written inscription on the cross. Somewhat farther is Milverton Church, with a quaint wooden tower: they say it is not worth while to build a stone one, as the lightning strikes it so often. But Guy's Cliff!

Perhaps I had better let those three words stand as sole suggestion of what that exquisite residence is. The strange legend of Guy of Warwick, vanquisher of Colbrand the Dane, and of the Dun Cow, hovers around this delightful old place. But I don't know whether Mr. Bertie Percy's poetic dwelling is not surpassed by the mill close thereto.

Few places I have seen dwell in my memory like this beautiful old mill, surrounded by a wealth of water, a luxury of leafage. If there be mills in fairy-land, they are built on this pattern. If the miller's daughter, "so dear, so dear" to the Laureate that he plagiarized from Anacreon for her sake, had any actual existence, it must have been at a mill like this of Guy's Cliff.

I scarce dare approach Warwick after Nathaniel Hawthorne. The reaction from a fast, loud, vulgar, sordid life, makes the most refined and poetic natures of America dreamers of dreams. Such, with especial emphasis, was Hawthorne. To him the ideal was more real than reality. What visions he saw in Warwick, where the great castle "floats double" in the lucid Avon; where a strange old-world tranquillity broods over the famous Earl of Leicester's antique hospital! After Windsor (and I do not forget Alnwick), I think Warwick the noblest castellated building in England. Built into the solid rock, it overhangs Avon with a wild sublimity. As you look down from the windows of the great hall upon the river far beneath, you think that thus may Guinevere and Lancelot have looked, when the angry Queen cast into the water the nine great diamonds, while the doomed barge bore to her burial the lily maid of Astolat. Why over that old broken bridge, green with the ivy of a thousand years, may not the blameless King have passed, and Merlin the sage, and Tristram of Lyonnesse, leading Iseult of Ireland? Who knows? Are these things fables? Are ye enchanters, Alfred Tennyson and Matthew Arnold?

The Earl of Warwick's courtesy throws the castle open to the public two or three days a week. Rumour says that the late Earl's housekeeper, whose monument may be seen in Warwick Church, left her master sixty thousand pounds, accumulated by visitors' fees! At the very gateway you are met by wonders,—an iron porridge-pot of the great Sir Guy, holding a hogshead or two, I suppose. The old knight must have had a rare appetite for breakfast. There is also his sword, a gigantic weapon, which I defy Jacob Omnium to wield with both hands. As for the contents

of the castle, I will not say a word about them; though of historical portraits, Vandykes and Rubenses, there is a fine collection. I commend the traveller upon looking out upon Avon from those wondrous rooms, to call back, if he can, the heroic and poetic times when it was possible to build such a castle; when it seemed fit habitation for those who dwelt in it,—for Neville the Kingmaker, to wit, who fills a marvellous page, brilliant with gold and stained with blood, in England's history; and who well deserved to be found in Shakespeare's peerless portrait-gallery.

Warwick town is very quaint, and has two old-fashioned hostelries, the Warwick Arms and the Woolpack, at either of which a hungry and thirsty traveller will find ample refreshment of the right sort. From the top of Warwick Church tower there is a magnificent view over a rich country. The church's chief glory is the Beauchamp Chapel, just 400 years old, a perfect poem in stone, an absolute triumph of the good old artist-workmen, who find no rivals in the days when artists are never workmen, and workmen never artists. Its dead inhabitant was last of the Beauchamp Earls, and that crowned saint, Henry VI., conferred the earldom upon the Kingmaker; thus commencing the third line of its holders, for the first Earl was a Newburgh, or Neuburg, of the Conqueror's creation; then, two centuries later, it passed through a female to the Beauchamps; two centuries more, and the last Beauchamp was succeeded by a Nevil; on Nevil's death, "false, fleeting, perjured Clarence" had the earldom, whose son, last of the Plantagenets, ended the fourth line, when he and Perkin Warbeck died on Tower Hill; next came the Dudleys, creatures of Henry VIII., the elder of whom, Lady Jane Grey's father-in-law and worst enemy, is better

known as Duke of Northumberland; then Lord Rich, whose great grand-son married Cromwell's daughter, was created Earl of Warwick by James I.; and finally George II. conferred the title on Greville, Earl Brooke, ancestor of the present Earl. Thus six families at least have held this famous earldom.

The traveller will of course turn aside to Leamington, town of fashion and frivolity, about a mile and a half from the poetic stream. Leamington owes its existence, as anything beyond a village, to one Dr. Jephson, who hit on the brilliant notion that the mineral waters of the place would cure all possible diseases. A great hotel sprang up, the Regent, which for years was a kind of hospital for Dr. Jephson's patients. This medical genius is quite deified in the town. There are pleasant gardens dedicated to him, to which none are admitted save subscribers of a guinea, or something of the sort. It is a downright apotheosis (or apodiabolosis) of physic. But other causes concurred to bring Leamington into the first rank of pleasure towns: there is capital hunting in the neighbourhood, and a first-rate pack of hounds. It is almost the metropolis of archery, a pastime which young ladies wisely patronize, since a pretty girl cannot look prettier than in her toxophilite costume of Lincoln-green. Nothing can be more beautiful than the walk by the margin of Avon through Lord Warwick's park. After passing through several pleasant villages, full of Warwickshire quaintness, we reach Charlecote House, the seat of the Lucy family. It has always appeared to me that Haydon more admirably than any man expressed the feeling which is produced in poetic minds by the places sacred to Shakespeare. Painting under the stress of a noble ambition, with the sad certainty that the age could

not perceive his greatness, had injured his health; instead of joining "the vulgar idlers at a watering-place" he sought change of scene at Stratford. How the man enjoyed it, and how vigorously he depicts his enjoyment! "To Charlecote," says he, "I walked as fast as my legs could carry me, and crossing the meadow, entered the immortalized park by a back pathway. Trees, gigantic and umbrageous, at once announce the growth of centuries: while I was strolling on, I caught a distant view of the old red-bricked house, in the same style and condition as when Shakespeare lived; and on going close to the river-side, came at once on two enormous old willows, with a large branch across the stream, such as Ophelia hung to. Every blade of grass, every daisy and cowslip, every hedge-flower and tuft of tawny earth, every rustling, ancient and enormous tree which curtains the sunny park with its cool shadows, between which the sheep glitter on the emerald green in long lines of light, every ripple of the river with its placid tinkle,

> "Giving a gentle kiss to every sedge
> It overtaketh in its pilgrimage,"

announced the place where Shakespeare imbibed his early, deep, and native taste for forest scenery. Oh, it was delightful, indeed! Shakespeare seemed to hover and bless all I saw, thought of, or trod on. Those great roots of the lime and the oak, bursting, as it were, above the ground, bent up by the depth they had struck into it, Shakespeare had seen—Shakespeare had sat on.

In the same spirit of delight, and with the same realizing power, did the great painter—one of those

> "Mighty poets in their misery dead,"

"of whom the world was not worthy"—enjoy Stratford itself. Thus does he write of what he felt as sunset descended on the church where lies all that was mortal of God's greatest human creature. "I stood and drank into enthusiasm all a human being could feel; all that the most ardent and devoted lover of a great genius could have a sensation of; all that the most tender scenery of river, trees, and sunset sky together could excite. I was lost, quite lost; and in such a moment should wish my soul to take its flight (if it please God) when my time is finished." God willed otherwise; that great soul took flight in a moment, not of delight, but of agony.

There seem to be always American visitors at Stratford. The refined and thoughtful Americans, like Washington Irving and Hawthorne, have by the intensity of their reverie, thrown a halo of fresh beauty around many places sacred to genius. But too many of these trans-atlantic travellers merely visit a place like Stratford just to say they have been there; and people of that kind are singularly unpleasant to meet. There is a story that one Yankee offered an enormous sum of money for Shakespeare's house, to take it to the States for exhibition.

I must hurry on. Village after village, quaint and beautiful, lie along the margin of Avon; the keen eye will notice whence Shakespeare drew his choicest descriptions of nature; the longest summer-day will not be too long to loiter around the vicinity of Stratford. One of the best proofs that Avon River flows through rich and lovely country is the multitude of monastic institutions which have left their names to the villages, with here and there a noble tower or graceful gateway.

Founders of abbeys loved a pleasant river flowing

through fertile meadows; salmon and trout and eels for fast-days were as important as beeves and deer for festivals. So there are more conventual remains between Naseby and Tewkesbury than in almost any equal distance of which I have knowledge; and the glory of those old ecclesiastic foundations is peculiarly realized as the noble bell-tower of Evesham Abbey rises above the town. The great monastery had lasted more than a thousand years when the ruthless hand of Henry VIII. fell upon it. The bell-tower and a most delightful old gateway are the only relics of it left.

The pilgrim through the beautiful Vale of Evesham comes upon another battle-field, where, 600 years ago, fell a famous leader of the Commons against the Crown. Simon de Montfort fought for the right, so far as we can judge at this remote period; but his antagonist was the greatest general of the day, and afterwards became England's greatest king. He was but twenty-six when he won the immortal victory known as the Murder of Evesham. If Montfort gave England its first parliament, Edward gave us Wales and Scotland, and made the priests pay taxes in defiance of the Pope. A poetic prince, as well as a gallant; for did he not, when Eleanora the Castilian died in Lincolnshire, cause Peter l'Imagineur to build a stately cross wherever her corpse rested on its way to Westminster? Thanks to the poetry of a railway company, London sees the last and stateliest of those crosses rebuilt in what was once the quiet village of Charing.

There was another abbey at Pershore, which takes its name from its abundant pear-trees. Bredon Hill, not far from this town, is worth climbing, for its fine view towards the Malverns. At the village of Strensham the author of

Hudibras was born. I must not be retarded by reminiscences of that most humorous writer of wonderful doggerel; but pass on to Tewkesbury, last of the towns on the Avon, which here falls into the wide and shining Severn. Tewkesbury had also its abbey and its famous battle; it has, moreover, its legend of that unfortunate gentleman, Brictric of Bristol, who, somewhere about the noon of the Eleventh Century, made love to Matilda, daughter of Count Baldwin of Flanders, and then jilted her. 'Twas the unluckiest action of his life. For Matilda married a certain fierce and resolute Duke of Normandy, who used to thrash her occasionally; and this same duke became King of England by the strong hand; and then Matilda coaxed him (nothing loth, I guess) to seize all Brictric's wide demesnes, and imprison their owner. So the poor fellow died in Winchester Castle; and his manors in half-a-dozen counties, as may be seen by Domesday book, passed into the hands of the queen. So much for the *spretæ injuria formæ*.

DOWN THE ST. LAWRENCE

CHARLES DICKENS

QUEENSTON, at which place the steamboats start from Toronto (or I should rather say at which place they call, for their wharf is at Lewiston, on the opposite shore), is situated in a delicious valley, through which the Niagara River, in colour a very deep green, pursues its course. It is approached by a road that takes its winding way among the heights by which the town is sheltered; and seen from this point is extremely beautiful and picturesque.

Our steamboat came up directly this had left the wharf, and soon bore us to the mouth of the Niagara: where the Stars and Stripes of America flutter on one side, and the Union Jack of England on the other: and so narrow is the space between them that the sentinels in either fort can often hear the watchword of the other country given. Thence we emerged on Lake Ontario, an inland sea; and by half-past six o'clock were at Toronto.

The country round this town being very flat, is bare of scenic interest; but the town itself is full of life and motion, bustle, business, and improvement. The streets are well paved, and lighted with gas; the houses are large and good; the shops excellent. Many of them have a display of goods in their windows, such as may be seen in thriving county towns in England; and there are some which would do no discredit to the metropolis itself.

The time of leaving Toronto for Kingston is noon. By



THE ST. LAWRENCE

eight o'clock next morning, the traveller is at the end of his journey, which is performed by steamboat upon Lake Ontario, calling at Port Hope and Coburg, the latter a cheerful, thriving little town. Vast quantities of flour form the chief item in the freight of these vessels. We had no fewer than one thousand and eighty barrels on board, between Coburg and Kingston.

We left Kingston for Montreal on the tenth of May, at half-past nine in the morning, and proceeded in a steamboat down the St. Lawrence River. The beauty of this noble stream at almost any point, but especially in the commencement of this journey when it winds its way among the Thousand Islands, can hardly be imagined. The number and constant successions of these islands, all green and richly wooded; their fluctuating sizes, some so large that for half an hour together one among them will appear as the opposite bank of the river, and some so small that they are mere dimples on its broad bosom; their infinite variety of shapes; and the numberless combinations of beautiful forms which the trees growing on them present: all form a picture fraught with uncommon interest and pleasure.

In the afternoon we shot down some rapids where the river boiled and bubbled strangely, and where the force and headlong violence of the current were tremendous. At seven o'clock we reached Dickenson's Landing, whence travellers proceed for two or three hours by stage-coach: the navigation of the river being rendered so dangerous and difficult in the interval, by rapids, that steamboats do not make the passage. The number and length of those *portages*, over which the roads are bad, and the travelling slow, render the way between the towns of Montreal and Kingston somewhat tedious.

Our course lay over a wide, uninclosed tract of country at a little distance from the riverside, whence the bright warning lights on the dangerous parts of the St. Lawrence shone vividly. The night was dark and raw, and the way dreary enough. It was nearly ten o'clock when we reached the wharf where the next steamboat lay; and went on board, and to bed.

She lay there all night, and started as soon as it was day. The morning was ushered in by a violent thunder-storm, and was very wet, but gradually improved and brightened up. Going on deck after breakfast, I was amazed to see floating down with the stream, a most gigantic raft, with some thirty or forty wooden houses upon it, and at least as many flag-masts, so that it looked like a nautical street. I saw many of these rafts afterwards, but never one so large. All the timber, or "lumber," as it is called in America, which is brought down the St. Lawrence, is floated down in this manner. When the raft reaches its place of destination, it is broken up; the materials are sold, and the boatmen return for more.

At eight we landed again, and travelled by a stage-coach for four hours through a pleasant and well-cultivated country, perfectly French in every respect: in the appearance of the cottages; the air, language, and dress of the peasantry; the signboards on the shops and taverns; and the Virgin's shrines, and crosses, by the wayside. Nearly every common labourer and boy, though he had no shoes to his feet, wore round his waist a sash of some bright colour: generally red: and the women, who were working in the fields and gardens, and doing all kinds of husbandry, wore, one and all, great flat straw hats with most capacious brims. There were Catholic Priests and Sisters of Charity in the

village streets; and images of the Saviour at the corners of cross-roads, and in other public places.

At noon we went on board another steamboat, and reached the village of Lachine, nine miles from Montreal, by three o'clock. There we left the river, and went on by land.

Montreal is pleasantly situated on the margin of the St. Lawrence, and is backed by some bold heights, about which there are charming rides and drives. The streets are generally narrow and irregular, as in most French towns of any age; but in the more modern parts of the city, they are wide and airy. They display a great variety of very good shops; and both in the town and suburbs there are many excellent private dwellings. The granite quays are remarkable for their beauty, solidity and extent.

There is a very large Catholic cathedral here, recently erected; with two tall spires, of which one is yet unfinished. In the open space in front of this edifice, stands a solitary, grim-looking, square brick tower, which has a quaint and remarkable appearance, and which the wiseacres of the place have consequently determined to pull down immediately. The Government House is very superior to that at Kingston, and the town is full of life and bustle. In one of the suburbs is a plank road—not foot-path—five or six miles long, and a famous road it is, too. All the rides in the vicinity were made doubly interesting by the bursting out of spring, which is here so rapid, that it is but a day's leap from barren winter, to the blooming youth of summer.

The steamboats to Quebec perform the journey in the night; that is to say, they leave Montreal at six in the evening, and arrive in Quebec at six next morning. We made this excursion during our stay in Montreal (which ex-

ceeded a fortnight), and were charmed by its interest and beauty.

The impression made upon the visitor by this Gibraltar of America: its giddy heights; its citadel suspended, as it were, in the air; its picturesque steep streets and frowning gateways; and the splendid views which burst upon the eye at every turn: is at once unique and lasting. It is a place not to be forgotten or mixed up in the mind with other places, or altered for a moment in the crowd of scenes a traveller can recall. Apart from the realities of this most picturesque city, there are associations clustering about it which would make a desert rich in interest. The dangerous precipice along whose rocky front Wolfe and his brave companions climbed to glory; the Plains of Abraham, where he received his mortal wound; the fortress, so chivalrously defended by Montcalm; and his soldier's grave, dug for him while yet alive, by the bursting of a shell; are not the least among them, or among the gallant incidents of history. That is a noble Monument, too, and worthy of two great nations, which perpetuates the memory of both brave generals, and on which their names are jointly written.

The city is rich in public institutions and in Catholic churches and charities, but it is mainly in the prospect from the site of the Old Government House, and from the Citadel, that its surpassing beauty lies. The exquisite expanse of country, rich in field and forest, mountain-height and water, which lies stretched out before the view, with miles of Canadian villages, glancing in long white streaks, like veins along the landscape; the motley crowd of gables, roofs, and chimney-tops in the old hilly town immediately at hand; the beautiful St. Lawrence sparkling and flashing

in the sunlight; and the tiny ships below the rock from which you gaze, whose distant rigging looks like spiders' webs against the light, while casks and barrels on their decks dwindle into toys, and busy mariners become so many puppets: all this, framed by a sunken window in the fortress and looked at from the shadowed room within, forms one of the brightest and the most enchanting pictures that the eye can rest upon.

In the spring of the year, vast numbers of emigrants who have newly arrived from England or from Ireland, pass between Quebec and Montreal on their way to the backwoods and new settlements of Canada. If it be an entertaining lounge (as I very often found it) to take a morning stroll upon the quay at Montreal, and see them grouped in hundreds on the public wharfs about their chests and boxes, it is matter of deep interest to be their fellow-passenger on one of these steamboats, and, mingling with the concourse, see and hear them unobserved.

THE TIGRIS

GEORGE RAWLINSON

THE Tigris, like the Euphrates, rises from two principal sources. The most distant, and therefore the true source is the western one, which is in latitude 38° 10′ longitude, 39° 20′, nearly, a little to the south of the high mountain lake called Göljik, in the peninsula formed by the Euphrates where it sweeps round between Palon and Telek. The Tigris's source is near the south-western angle of the lake, and cannot be more than two or three miles from the channel of the Euphrates. The course of the Tigris is at first somewhat north of east, but after pursuing this direction for about twenty-five miles it makes a sweep round to the south, and descends by Arghani Maden upon Diarbekr. Here is a river of considerable size, and it is crossed by a bridge of ten arches a little below that city. It then turns suddenly to the east, and flows in this direction past Osman Kieui to Til where it once more alters its course and takes that south-easterly direction, which it pursues with certain slight variations, to its final junctions with the Euphrates. At Osman Kieui it receives the second or Eastern Tigris, which descends from Niphates, with a due course south, and, collecting on its way the waters of a large number of streams, unites with the Tigris half-way between Diarbekr and Til, in longitude 41° nearly. Near Til a large stream flows into it from the north-east, bringing almost as much water as the main channel ordinarily holds.

The length of the whole stream, exclusive of meanders, is reckoned at 1,146 miles. From Diarbekr to Samara the navigation is much impeded by rapids, rocks and shallows, as well as by artificial bunds or dams, which in ancient times were thrown across the stream, probably for purposes of irrigation. The average width of the Tigris in this part of its course is 200 yards, while its depth is very considerable. From the west the Tigris obtains no tributary of the slightest importance, for the Tharthar, which is said to have once reached it, now ends in a salt lake, a little below Tekrit. Its volume, however, is continually increasing as it descends, in consequence of the great bulk of water brought in from the east, particularly by the Great Zab and the Diyaleh.

The Tigris, like the Euphrates, has a flood season. Early in the month of March, in consequence of the melting of the snow on the southern flank of Niphates, the river rises rapidly. Its breadth gradually increases at Diarbekr from 100 or 120 to 250 yards. The stream is swift and turbid. The rise continues through March and April, reaching its full height generally in the first or second week of May. At this time the country about Baghdad is often extensively flooded, not, however, so much from the Tigris as from the overflow of the Euphrates, which is here poured into the eastern stream through a canal. About the middle of May the Tigris begins to fall, and by midsummer it has reached its normal level.

We find but little mention of the Tigris in Scripture. It appears indeed under the name of Hiddekel, among the rivers of Eden, and is there correctly described as "running eastward to Assyria." But after this we hear no more of it, if we except one doubtful allusion in Nahum, until

the Captivity, when it becomes well known to the prophet Daniel, who had to cross it in his journeys to and from Susa. With Daniel it is "the Great River"—an expression commonly applied to the Euphrates; and by its side he sees some of his most important visions. No other mention seems to occur except in the apocryphal books; and there it is unconnected with any real history. The Tigris, in its upper course, anciently ran through Armenia and Assyria. Lower down, from above the point where it enters on the alluvial plain, it separated Babylonia from Susiana. In the wars between the Romans and the Parthians we find it constituting, for a short time (from A. D. 114 to A. D. 117), the boundary line between these two empires. Otherwise it has scarcely been of any political importance. The great chain of Zagros is the main natural boundary between Western and Central Asia; and beyond this, the next defensible line is the Euphrates. Historically it is found that either the central power pushes itself westward to that river; or the power ruling the west advances eastward to the mountain barrier.

The water of the Tigris, in its lower course, is yellowish, and is regarded as unwholesome. The stream abounds with fish of many kinds, which are often of a large size. Abundant water-fowl float on the waters. The banks are fringed with palm trees and pomegranates, or clothed with jungle and reeds, the haunt of the wild-boar and the lion.

THE OISE

ROBERT LOUIS STEVENSON

THE river was swollen with the long rains. From Vadencourt all the way to Origny, it ran with ever quickening speed, taking fresh heart at each mile, and racing as though it already smelt the sea. The water was yellow and turbulent, swung with an angry eddy among half-submerged willows, and made an angry clatter along stony shores. The course kept turning and turning in a narrow and well-timbered valley. Now, the river would approach the side, and run grinding along the chalky base of the hill, and show us a few open colza fields among the trees. Now, it would skirt the garden-walls of houses, where we might catch a glimpse through a doorway and see a priest pacing in the chequered sunlight. Again the foliage closed so thickly in front, that there seemed to be no issue; only a thicket of willows, overtopped by elms and poplars, under which the river ran flush and fleet, and where a kingfisher flew past like a piece of the blue sky. On these different manifestations, the sun poured its clear and catholic looks. The shadows lay as solid on the swift surface of the stream as on the stable meadows. The light sparkled golden in the dancing poplar leaves, and brought the hills into communion with our eyes. And all the while the river never stopped running or took breath; and the reeds along the whole valley stood shivering from top to toe.

There should be some myth (but if there is, I know it

not) founded on the shivering of the reeds. There are not many things in nature more striking to man's eye. It is such an eloquent pantomime of terror; and to see such a number of terrified creatures taking sanctuary in every nook along the shore, is enough to infect a silly human with alarm. Perhaps they are only a-cold, and no wonder, standing waist deep in the stream. Or perhaps they have never got accustomed to the speed and fury of the river's flux, or the miracle of its continuous body. Pan once played upon their forefathers; and so, by the hands of the river, he still plays upon these later generations down all the valley of the Oise; and plays the same air, both sweet and shrill, to tell us of the beauty and the terror of the world.

The canoe was like a leaf in the current. It took it up and shook it and carried it masterfully away, like a Centaur carrying off a nymph. To keep some command on our direction, required hard and diligent plying of the paddle. The river was in such a hurry for the sea! Every drop of water ran in a panic, like as many people in a frightened crowd.

There was never any mistake about the Oise, as a matter of fact. In these upper reaches, it was still in a prodigious hurry for the sea. It ran so fast and merrily, through all the windings of its channel that I strained my thumb, fighting with the rapids, and had to paddle all the rest of the way with one hand turned up. Sometimes it had to serve mills; and being still a little river, ran very dry and shallow in the meanwhile. We had to put our legs out of the boat, and shove ourselves off the sand of the bottom with our feet. And still it went on its way singing among the poplars and making a green valley in

the world. After a good woman and a good book, and tobacco, there is nothing so agreeable on earth as a river. I forgave it its attempt on my life; which was after all one part owing to the unruly winds of heaven that had blown down the tree, one part to my own mismanagement, and only a third part to the river itself, and that not out of malice, but from its great preoccupation over its business of getting to the sea. A difficult business, too; for the *détours* it had to make are not to be counted. The geographers seem to have given up the attempt; for I found no map representing the infinite contortion of its course. A fact will say more than any of them. After we had been some hours, three if I mistake not, flitting by the trees at this smooth, breakneck gallop, when we came upon a hamlet and asked where we were, we had got no farther than four kilometres (say two miles and a half) from Origny. If it were not for the honour of the thing (in the Scotch saying), we might almost as well have been standing still.

Moy (pronounce Moÿ) was a pleasant little village gathered round a *château* with a moat. The air was perfumed with hemp from neighbouring fields. At the Golden Sheep we found excellent entertainment. German shells from the siege of La Fère, Nürnberg figures, gold fish in a bowl, and all manner of knick-knacks embellished the public room. The landlady was a stout, plain, short-sighted, motherly body, with something not far short of a genius for cookery. . . . We made a very short day of it to La Fère; but the dusk was falling and a small rain had begun before we stowed the boats. . . .

Below La Fère the river runs through a piece of open pastoral country; green, opulent, loved by breeders; called

the Golden Valley. In wide sweeps, and with a swift and equable gallop, the ceaseless stream of water visits and makes green the fields. Kine and horses, and little humorous donkeys browse together in the meadows, and come down in troops to the riverside to drink. They make a strange feature in the landscape; above all when startled, and you can see them galloping to and fro, with their incongruous forms and faces. It gives a feeling as of great unfenced pampas and the herds of wandering nations. There were hills in the distance upon either hand; and on one side the river sometimes bordered on the wooded spurs of Coucy and St. Gobain. . . .

All the time, the river stole away like a thief in straight places, or swung round corners with an eddy, the willows nodded and were undermined all day long; the clay banks tumbled in; the Oise, which had been so many centuries making the Golden Valley, seemed to have changed its fancy, and be bent upon undoing its performance. What a number of things a river does, by simply following Gravity in the innocence of its heart!

Noyon stands about a mile from the river, in a little plain surrounded by wooded hills, and entirely covers an eminence with its tile roofs surmounted by a long, straight-backed cathedral with two stiff towers. As we got into the town, the tile roofs seemed to tumble up hill one upon another, in the oddest disorder; but for all their scrambling, they did not attain above the knees of the cathedral, which stood upright and solemn, over all. As the streets drew near to this presiding genius, through the market-place under the Hotel de Ville, they grew emptier and more composed. Blank walls and shuttered windows were turned to the great edifice and grass grew on the white

causeway. "Put off thy shoes from off thy feet for the place whereon thou standest is holy ground." The Hôtel du Nord, nevertheless, lights its secular tapers within a stone cast of the church, and we had the superb east end before our eyes all morning from the window of our bedroom. . . .

The most patient people grow weary at last with being continually wetted with rain; except of course in the Scotch Highlands, where there are not enough fine intervals to point the difference. That was like to be our case the day we left Noyon. I remember nothing of the voyage; it was nothing but clay banks and willows and rain; incessant, pitiless, beating rain; until we stopped to lunch at a little inn in Pimprez, where the canal ran very near the river. . . . That was our last wetting. The afternoon faired up: grand clouds still voyaged in the sky, but now singly and with a depth of blue around their path; and a sunset, in the daintiest rose and gold, inaugurated a thick night of stars and a month of unbroken weather. At the same time, the river began to give us a better outlook into the country. The banks were not so high, the willows disappeared from along the margin, and pleasant hills stood all along its course and marked their profile on the sky.

In a little while, the canal, coming to its last lock, began to discharge its water-houses on the Oise; so that we had no lack of company to fear. Here were all our old friends; the Deo Gratias of Condé and the Four Sons of Aymon journeyed cheerily down stream along with us; we exchanged waterside pleasantries with the steersman perched among the lumber, or the driver hoarse with bawling to his horses; and the children came and looked over the side as

we paddled by. We had never known all this while how much we missed them; but it gave us a fillip to see the smoke from their chimneys.

A little below this junction we made another meeting of yet more account. For there we were joined by the Aisne, already a far travelled river and fresh out of Campagne. Here ended the adolescence of the Oise; this was his marriage day; thenceforward he had a stately, brimming march, conscious of his own dignity and sundry dams. He became a tranquil feature in the scene. The trees and towns saw themselves in him, as in a mirror. He carried the canoes lightly on his broad breast; there was no need to work hard against an eddy: but idleness became the order of the day, and mere straightforward dipping of the paddle, now on this side, now on that, without intelligence or effort. Truly we were coming into halcyon weather upon all accounts, and were floated towards the sea like gentlemen.

We made Compiègne as the sun was going down: a fine profile of a town above the river. Over the bridge, a regiment was parading to the drum. People loitered on the quay, some fishing, some looking idly at the stream. And as the two boats shot in along the water, we could see them pointing them out and speaking one to another. We landed at a floating lavatory, where the washerwomen were still beating the clothes.

We put up at a big, bustling hotel in Compiègne, where nobody observed our presence. . . . It is not possible to rise before a village; but Compiègne was so grown a town that it took its ease in the morning; and we were up and away while it was still in dressing-gown and slippers. The streets were left to people washing door-steps; nobody was in full dress but the cavaliers upon the town-hall; they were

all washed with dew, spruce in their gilding and full of intelligence and a sense of professional responsibility. Kling, went they on the bells for the half-past six, as we went by. I took it kind of them to make me this parting compliment; they never were in better form, not even at noon upon a Sunday.

There was no one to see us off but the early washerwomen—early and late—who were already beating the linen in their floating lavatory on the river. They were very merry and matutinal in their ways; plunged their arms boldly in and seemed not to feel the shock. It would be dispiriting to me, this early beginning and first cold dabble, of a most dispiriting day's work. But I believe they would have been as unwilling to change days with us, as we could be to change with them. They crowded to the door to watch us paddle away into the thin sunny mists upon the river; and shouted heartily after us till we were through the bridge.

There is a sense in which those mists never rose from off our journey; and from that time forth they lie very densely in my note-book. As long as the Oise was a small rural river, it took us near by people's doors and we could hold a conversation with natives in the riparian fields. But now that it had gone so wide, the life along shore passed us by at a distance. It was the same difference as between a great public highway and a country by-path that wanders in and out of cottage gardens. We now lay in towns, where nobody troubled us with questions; we had floated into civilized life, where people pass without salutation. In sparsely inhabited places, we make all we can of each encounter; but when it comes to a city, we keep to ourselves, and never speak unless we have trodden on a man's toes.

In these waters, we were no longer strange birds, and nobody supposed we had travelled further than from the last town. I remember when we came into L' Isle Adam, for instance, how we met dozens of pleasure-boats, outing it for the afternoon, and there was nothing to distinguish the true voyager from the amateur, except, perhaps, the filthy condition of my sail. The company in one boat actually thought they recognized me for a neighbour. Was there ever anything more wounding? All the romance had come down to that. Now, on the upper Oise, where nothing sailed as a general thing but fish, a pair of canoeists could not be thus vulgarly explained away; we were strange and picturesque intruders; and out of people's wonder sprang a sort of light and passing intimacy all along our route. . . .

In our earlier adventures there was generally something to do, and that quickened us. Even the showers of rain had a revivifying effect, and shook up the brain from torpor. But now, when the river no longer ran in a proper sense, only glided seaward with an even, outright, but imperceptible speed, and when the sky smiled upon us day after day without variety, we began to slip into that golden doze of the wind which follows upon much exercise in the open air. I have stupefied myself in this way more than once; indeed, I dearly love the feeling; but I never had it to the same degree as when paddling down the Oise. It was the apotheosis of stupidity. . . .

We made our first stage below Compiègne to Pont Sainte Maxence. I was abroad a little after six the next morning. The air was biting and smelt of frost. In an open place a score of women wrangled together over the day's market; and the noise of their negotiation sounded

thin and querulous like that of sparrows on a winter's morning. The rare passengers blew into their hands and shuffled in their wooden shoes to set the blood agog. The streets were full of icy shadow, although the chimneys were smoking overhead in golden sunshine. If you wake early enough at this season of the year, you may get up in December to break your fast in June.

At Creil, where we stopped to lunch, we left the canoes in another floating lavatory, which, as it was high noon, was packed with washerwomen, red-handed and loud-voiced; and they and their broad jokes are about all I remember of the place. . . . The church at Creil was a nondescript place in the inside, splashed with gaudy lights from the windows and picked out with medallions of the Dolorous Way. But there was one oddity, in the way of an *ex voto*, which pleased me hugely: a faithful model of a canal boat, swung from the vault, with a written aspiration that God should conduct the *Saint Nicholas* of Creil to a good haven.

We made Précy about sundown. The plain is rich with tufts of poplar. In a wide, luminous curve, the Oise lay under the hillside. A faint mist began to rise and confound the different distances together. There was not a sound audible but that of the sheep-bells in some meadows by the river and the creaking of a cart down the long road that descends the hill. The villas in their gardens, the shops along the street, all seemed to have been deserted the day before; and I felt inclined to walk discreetly as one feels in a silent forest.

Of the next two days' sail little remains in my mind, and nothing whatever in my note-book. The river streamed on steadily through pleasant riverside landscapes. Washerwomen in blue dresses, fishers in blue blouses, diversified

the green banks; and the relation of the two colours was like that of the flower and leaf in the forget-me-not. A symphony in forget-me-not; I think Théophile Gautier might thus have characterized that two days' panorama. The sky was blue and cloudless; and the sliding surface of the river held up, in smooth places, a mirror to the heaven and the shores. The washerwomen hailed us laughingly and the noise of trees and water made an accompaniment to our dozing thoughts, as we fleeted down the stream.

The great volume, the indefatigable purpose of the river held the mind in chain. It seemed now so sure of its end, so strong and easy in its gait, like a grown man full of determination. The surf was roaring for it on the sands of Havre.

THE HUDSON

ESTHER SINGLETON

THE Hudson is considered the most beautiful river of the United States. Its scenery is so enchanting that it has been called the "Rhine of America." Its hills and banks are dotted with palatial residences. To the historian they are eloquent of the brave generals and their armies who fought for Liberty and they charm the dreamer by the legends that cluster around them. It is no trouble for him to see the Phantom Ship scudding across the Tappan Zee, or to people Sleepy Hollow with vanished forms.

George William Curtis pronounced the Rhine of America even grander than the Rhine. He says: "The Danube has in part glimpses of such grandeur. The Elbe has sometimes such delicately pencilled effects. But no European river is so lordly in its bearing, none flows in such state to the sea."

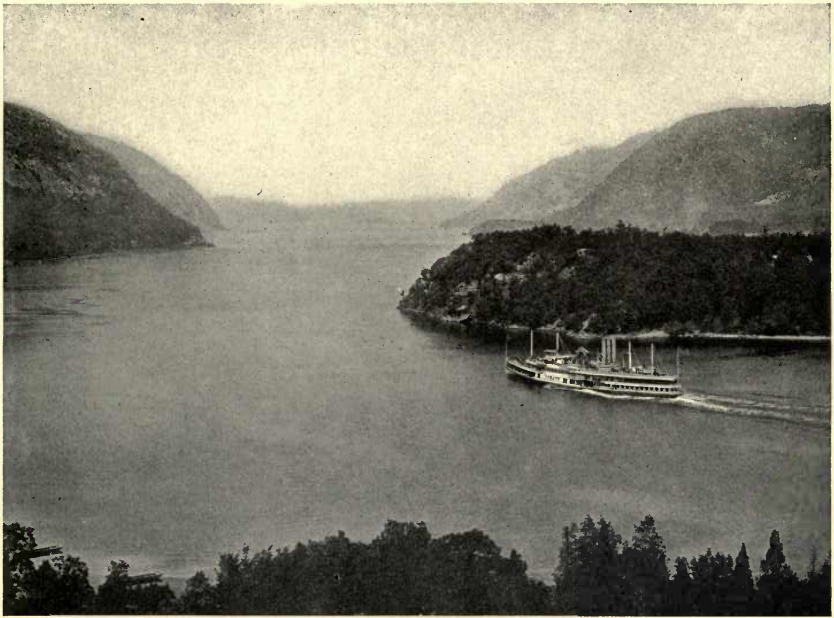
The Hudson's course of three hundred miles told briefly is as follows:

It rises in the Adirondacks about 4,000 feet above the sea, where innumerable little streams fed by mountain lakes unite to form the headwaters of the noble river that begins a tortuous course and receives the outlet of Schroon Lake and the Sacondaga River. Turning to the east, it finally reaches Glen's Falls, where it drops fifty feet. From thence to Troy, it is much broken by rapids, and it is not until it reaches Albany, six miles below Troy,

that the Hudson becomes wide and flows through elevated and picturesque banks. Then, in its journey, it passes by the Catskills, or as the Indians called them—the Ontioras (Mountains of the Sky) which are but seven miles from its banks. A short distance below Newburg, sixty-one miles from New York, it begins its passage through the noble hills called The Highlands, an area of about sixteen by twenty-five miles. In the midst of this beautiful scenery on a bold promontory stands the United States Military Academy at West Point. The river then widens into Haverstraw Bay, immediately below which is Tappan Zee, extending from Teller's Point to Piermont, twelve miles long and from three to four miles wide. Just below Piermont, a range of trap rock—the Palisades—extends to Fort Lee, a distance of about fifteen miles. From Fort Lee to its mouth the Hudson is from one mile to two miles long. The Hudson has been called Shatemuck, the Mohegan, the Manhattan, the Mauritius (in honour of Prince Maurice of Nassau) the Noordt Montaigne, the North River (to distinguish it from the Delaware or South River) the River of the Mountains, and, finally, the Hudson in honour of its discoverer.

Although Verrazano practically discovered this river in 1524, its first navigator was Henry Hudson who in the service of the Dutch West India Company on his voyage in the *Half Moon* passed through the Narrows in 1609, entered New York Bay and sailed up the Mohegan River as far as Albany.

The Hudson was divided by the old navigators into fourteen reaches, one of which, Claverack (Clover Reach), has survived. First came the Great Chip-Rock Reach (the Palisades); then the Tappan Reach where dwelt the Man-



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THE HUDSON

hattans, the Saulrickans and the Tappans; the next reach ended at Haverstroo; following came Seylmaker's Reach, Crescent Reach, Hoges Reach and Vorsen Reach which extended to Klinkersberg (Storm King). Fisher's Reach, Claverack, Backerack, Playsier and Vaste Reach as far as Hinnenhock; then Hunter's Reach to Kinderhook; and Fisher's Hook near Shad Island, where dwelt the Mohegans.

No river in America presents so animated a scene as the Hudson from the Battery to the beginning of the Palisades. Ocean steamers, ferry-boats, excursion boats, private yachts, and craft of all sizes and kinds sail or steam down the narrow channel or cross between the shores of Manhattan and New Jersey. The river is always gay and beautiful in sunshine and fog, winter and summer.

On ascending the river, the first point of interest is Weehawken, on the west, where, on a narrow ledge of rock, Aaron Burr killed Alexander Hamilton in a duel, July 11, 1804. Next, and on the eastern shore, is Spuyten Duyvel Creek, associated with the earliest history of the river. This is a narrow stream formed by the in-flowing tide-water of the Hudson and joining at Kingsbridge with the so-called Harlem River, which is a similar in-flowing of the tide-water of Long Island Sound. Here a bridge was built in 1693; and here, on the 2d of October, Henry Hudson had a severe fight with the Indians who attacked the *Half Moon*. The origin of the name is unknown; but Irving's legend clings to the spot as a limpet to a rock. He tells the story that the trumpeter, Antony van Corlear, was dispatched one evening on a message up the Hudson. When he arrived at this creek, the wind was high, the elements were in an uproar, and no boatman was at hand. He de-

clared he would swim across *en spijt en Duyvel* (in spite of the Devil), but was drowned on the way.

Yonkers is the next point of interest on this side of the river, supposed to have derived its name from *yonk-herr*, the young heir. After passing Hastings and Dobbs Ferry (named after an old ferryman), the river widens into a beautiful bay. Across the river, opposite Spuyten Duyvel, is Fort Lee, from which Washington watched the battle that resulted in the loss of Fort Washington. From this point the Palisades begin. This range of rocks is from two hundred and fifty to six hundred feet high and extends about fifteen miles from Fort Lee to the hills of Rockland County.

Opposite Dobbs Ferry, the northern boundary line of New Jersey strikes the Hudson; and from this point north the river runs solely through the state of New York. At this point is Piermont; and near it Tappan, where André was hanged. Directly opposite Piermont is Irvington, twenty-four miles from New York, where close to the water's edge stands *Sunnyside*, the charming home of Washington Irving, "made up of gable-ends and full of angles and corners as an old cocked hat," to quote the description of the author, who bought and beautified an old Dutch dwelling called *Wolfert's Roost*.

Three miles north is Tarrytown, a name derived from the Dutch Tarwen-Dorp, or wheat town, and not, as Diedrich Knickerbocker said, because husbands would tarry at the village tavern. A mile north of Tarrytown is the romantic Sleepy Hollow, where still stands the old Dutch Church. Six miles above Tarrytown and Sing Sing, now called by its original name, *Ossin* (a stone) and *ing* (a place) is reached. The name is derived from the rocky

and stony character of the bank. Here the State Prison is situated.

Rockland and the old "tedious spot"—Verdietege Hook—of the old Dutch sailors are opposite, and a little above the latter, Diedrich Hook, or Point No Point. Croton River meets the Hudson about a mile above Sing Sing and forms Croton Bay. Croton Point, on which the Van Cortlandt Manor House stands, juts out here and separates Tappan Zee from Haverstraw Bay, and at the end of which, once called Teller's Point, a great Indian battle is said to have taken place. The spot is haunted by the ghosts of warriors and sachems. Three miles more, and we reach Stony Point on the west; and, passing Verplanck's Point on the east, come to Peekskill, where Nathan Palmer, the spy, was hanged. This was also the headquarters of General Israel Putnam.

Turning Kidd's Point, or Caldwell's landing, with Peekskill opposite, we pass through the "Southern Gate of the Highlands." It is at this spot that Captain Kidd's ship is supposed to have been scuttled. Here the Dunderberg, or Thunder Mountain rises abruptly from the river; and, as the latter turns to the west (now called for a brief time The Horse Race), another bold mass of rock, Anthony's Nose (1,228 feet), looms into view.

On the other side of the river is Fort Montgomery Creek, once called Poplopen's Kill, and here stood Fort Montgomery and Fort Clinton on either side of the mouth. From Fort Montgomery to Anthony's Nose a chain of iron and wood was stretched across the river during the Revolutionary War to prevent the passage of British boats.

Opposite Anthony's Nose is the Island of Iona; and now we see the Sugar Loaf, not one hill, as first appears, but a

series of hills. At the foot of Sugar Loaf stood Beverly House, where Arnold lived at the time of his treason.

Half a mile below West Point, on the west side of the river, a small stream, rushing down the rocky precipice, forms a snowy cascade, known as Buttermilk Falls.

West Point, with its academy buildings and parade ground on a plateau two hundred feet above the river—the "Gibraltar of the Hudson"—near which may be seen the ruins of old Fort Putnam on Mount Independence, five hundred feet above the river, takes us into historic ground and beautiful scenery. We pass a succession of lofty hills on the same side of the river, the chief of which is Old Cro' Nest (1,418 feet). Its name was given to it from a circular lake on the summit suggesting a nest in the mountains; and it is thus described by Rodman Drake, in the *Culprit Fay:*

> "'Tis the middle watch of a summer night,
> The earth is dark, but the heavens are bright,
> The moon looks down on Old Cro' Nest—
> She mellows the shade on his shaggy breast,
> And seems his huge grey form to throw
> In a silver cone on the wave below."

To the north of Cro' Nest comes Storm King, the highest peak of the Highlands (1,800 feet). First it was called Klinkersberg and then Boterberg (Butter Hill) and renamed Storm King by N. P. Willis. Storm King with Breakneck (1,187 feet), on the opposite side form the "Northern Gate of the Highlands." The river here is deep and narrow as it cuts its way through what is practically a gorge in the Alleghany Mountains.

The Highlands now trend off to the north-east and the

New Beacon or Grand Sachem Mountain (1,685 feet) and the Old Beacon (1,471 feet). The names are explained by the fact that signal fires were kindled on their summits during the Revolution. The Indians called them Matteawan and sometimes referred to the whole range of Highlands as Wequehachke (Hill Country). They also believed that the great Manito confined here rebellious spirits whose groans could often be heard.

On the west shore are situated the towns of Cornwall and Newburg, where Washington had his headquarters in the old Hasbrouck House.

Opposite Newburg is Fishkill Landing and above Newburg on the west side is the Devil's Danskammer, or Devil's Dancing Chamber, where the Indians celebrated their religious rites. Several villages and towns are passed on both sides of the river.

One spot of romantic interest on the west shore is Blue Point, where on moonlight nights a phantom ship is often seen at anchor beneath the bluff. It is supposed to be the *Half Moon*, which one day passed the Battery and sailed up the river without paying the slightest heed to signals. The "Storm Ship," as she is called, is often seen in bad weather in the Tappan Zee and in Haverstraw Bay; but more frequently she appears at rest beneath the shadow of Blue Point.

Across the river is Poughkeepsie, so called from the Indian word Apokeepsing, meaning safe harbour. At this point is the only bridge that crosses the river between New York and Albany.

Six miles above Poughkeepsie, the river makes a sudden turn. The Dutch called this point Krom Elleboge (Crooked Elbow), now Crum Elbow. Ten miles further

is Rhinebeck Landing, the approach to the old Dutch village of Rhinebeck, founded by William Beckman in 1647. On the opposite side of the river are Rondout and Kingston on Esopus Creek, which flows north and joins the Hudson at Saugerties.

North of Rhinebeck comes Lower Red Hook Landing or Barrytown, North Bay where the *Clermont* was built by Robert Fulton, and then Tivoli.

The next point of interest on the west side is Catskill Landing, just above the mouth of the Kaaterskill Creek. On the east bank is the city of Hudson; on the west bank Athens. Nearly opposite Four Mile Point Lighthouse is Kinderhook River or Creek on whose banks Martin Van Buren lived. Opposite Kinderhook is Coxsackie and above this New Baltimore and Coeymans. On the eastern bank are Schodack Landing, Castleton and Greenbush or East Albany. A bridge leads across to Albany on the west bank of the river. Six miles above Albany is the city of Troy, on the east bank. Above Cohoes on the west bank the Hudson receives the Mohawk, its largest tributary (150 miles long). Above Troy navigation is interrupted by many rapids and falls.

During the winter the river constantly freezes and it is not uncommon in the upper reaches to see skaters and sleighs crossing the ice. The breaking up of the ice is a marvellous spectacle.

In her *Memoirs of an American Lady*, Mrs. Grant of Laggan has vividly described this "sublime spectacle." She notes that the whole population of Albany was down at the riverside in a moment when the first sound was heard like a "loud and long peal of thunder." She writes:

"The ice, which had been all winter very thick, instead

of diminishing, as might be expected in spring, still increased, as the sunshine came, and the days lengthened. Much snow fell in February, which, melted by the heat of the sun, was stagnant for a day on the surface of the ice, and then by the night frosts, which were still severe, was added, as a new accession to the thickness of it, above the former surface. This was so often repeated, that, in some years, the ice gained two feet in thickness, after the heat of the sun became such as one would have expected should have entirely dissolved it. So conscious were the natives of the safety this accumulation of ice afforded, that the sledges continued to drive on the ice when the trees were budding, and everything looked like spring; nay, when there was so much melted on the surface that the horses were knee-deep in water while travelling on it, and portentous cracks on every side announced the approaching rupture. This could scarce have been produced by the mere influence of the sun till midsummer. It was the swelling of the waters under the ice, increased by rivulets, enlarged by melted snows, that produced this catastrophe; for such the awful concussion made it appear. The prelude to the general bursting of this mighty mass, was a fracture, lengthways, in the middle of the stream, produced by the effort of the imprisoned waters, now increased too much to be contained within their wonted bounds. Conceive a solid mass, from six to eight feet thick, bursting for many miles in one continued rupture, produced by a force inconceivably great, and, in a manner, inexpressibly sudden. Thunder is no adequate image of this awful explosion, which roused all the sleepers, within reach of the sound, as completely as the final convulsion of nature, and the solemn peal of the awakening trumpet might be supposed to do. The stream in

summer was confined by a pebbly strand, overhung with high and steep banks, crowned with lofty trees, which were considered as a sacred barrier against encroachments of this annual visitation. Never dryads dwelt in more security than those of the vine-clad elms, that extended their ample branches over this mighty stream. Their tangled roots, laid bare by the impetuous torrents, formed caverns ever fresh and fragrant; where the most delicate plants flourished, unvisited by scorching suns, or snipping blasts; and nothing could be more singular than the variety of plants and birds that were sheltered in these intricate and safe recesses. But when the bursting of the crystal surface set loose the many waters that had rushed down, swollen with the annual tribute of dissolving snow, the islands and lowlands were all flooded in an instant; and the lofty banks, from which you were wont to overlook the stream, were now entirely filled by an impetuous torrent, bearing down, with incredible and tumultuous rage, immense shoals of ice; which, breaking every instant by the concussion of others, jammed together in some places, in others erecting themselves in gigantic heights for an instant in the air, and seeming to combat with their fellow-giants crowding on in all directions, and falling together with an inconceivable crash, formed a terrible moving-picture, animated and various beyond conception; for it was not only the cerulean ice, whose broken edges, combating with the stream, refracted light into a thousand rainbows, that charmed your attention; lofty pines, large pieces of the bank torn off by the ice with all their early green and tender foliage, were driven on like travelling islands, amid this battle of breakers, for such it seemed. I am absurdly attempting to paint a scene, under which the powers of language sink."

Since the days of the old Dutch settlers the Hudson has witnessed all the triumphs of modern ship-building and navigation. It was on the Hudson that Robert Fulton made his first experiments in steam navigation and into the Hudson have come the new turbine steamships that have crossed the Atlantic in five days; and beneath its waters tunnels have lately been opened.

Many changes have taken place on its banks since Washington Irving wrote: "I thank God that I was born on the banks of the Hudson. I fancy I can trace much of what is good and pleasant in my own heterogeneous compound to my early companionship with this glorious river. In the warmth of youthful enthusiasm, I used to clothe it with moral attributes, and, as it were, give it a soul. I delighted in its frank, bold, honest character; its noble sincerity and perfect truth. Here was no specious, smiling surface, covering the shifting sand-bar and perfidious rock, but a stream deep as it was broad and bearing with honourable faith the bark that trusted to its waves. I gloried in its simple, quiet, majestic, epic flow, ever straight forward, or, if forced aside for once by opposing mountains, struggling bravely through them, and resuming its onward march. Behold, thought I, an emblem of a good man's course through life, ever simple, open and direct, or if, overpowered by adverse circumstances, he deviate into error, it is but momentary; he soon resumes his onward and honourable career, and continues it to the end of his pilgrimage."

THE TIBER

STROTHER A. SMITH

THOUGH the Tiber is insignificant in size, compared with the great rivers of the world, it is one of the most famous, and even its tributaries, down to the smallest brook, have some historical or poetic association connected with them, or exhibit some singular natural peculiarity. Its stream is swelled by the superfluous waters of the historic Thrasymene; its affluents, the Velino and the Anio, form the celebrated Cascades of Terni and Tivoli; the Clitumnus and the Nar are invested with poetic interest by the verses of Virgil, Ovid, and Silius Italicus; while the Chiana presents the singular phenomenon of a river which, within the historic period, has divided itself into two, and now forms a connecting link between the Arno and the Tiber, discharging a portion of its waters into each. The smaller streams, also, the Cremera, the Allia, and the Almo, have each their legend, historical, or mythological; while the rivulet of the Aqua Crabra, or Marrana, recalls the memory of Cicero and his litigation with the company which supplied his establishment at Tusculum with water from the brook.

The Tiber rises nearly due east of Florence, and on the opposite side of the ridge which gives birth to the Arno. It issues in a copious spring of limpid water, which at the distance of a mile has force enough to turn



THE TIBER

a mill. If we are to believe Bacci, it exhales so warm a vapour that snow, notwithstanding the elevation of the region, will not lie along its course within half a mile. For a distance of fifty-six miles it flows in a south-easterly direction through an elevated valley, in the upper part of which the cold, according to Pliny the younger, who had a villa there, was too great for the olive, and where the snow often accumulates to a considerable depth. Not far from Perugia it turns to the south, and about fourteen miles lower down by the windings of the stream, receives its first affluent, the Chiascia, which brings with it the Topino (anciently Tineas), and the waters of the classic Clitumnus, known to the readers of Virgil, Propertius, and Silius Italicus as the river on whose banks were bred, and in whose stream were washed, "the milk-white oxen which drew the Roman triumphs to the temples of the gods," and the same which is so picturesquely described by the younger Pliny. At a place called La Vene, one of the sources of the Clitumnus rises at the foot of a hill. Like the fountain of Vaucluse, it issues a small river from the earth, and according to Pliny, had sufficient depth of water to float a boat. It is clear as crystal, delightfully cool in summer, and of an agreeable warmth in winter. Near it stands a temple once sacred to the river god, but now surmounted by the triumphant cross. It seems to have been a favourite place of resort for the Romans, as far as their limited means of locomotion would permit; since even the ferocious Caligula, as Suetonius tells us, attended by his body-guard of Batavians, was among the visitors to these celebrated springs. The beauty of the scenery appears to have been the attraction; for there were no mineral sources, and a refined superstition would have

prevented the Romans from availing themselves of the agreeable temperature of the water to indulge in the luxury of bathing, rivers near their sources being accounted sacred, and polluted by the contact of a naked body. Of all the misdeeds of Nero none, perhaps, contributed more to his unpopularity than his swimming, during one of his drunken frolics, in the source of the Aqua Marcia, the same which is brought by the aqueduct to Rome, and which rises in the mountains of the Abruzzi, where Nero was staying at the time.

When the news of this act of profanation arrived in the city it created a great sensation; and an illness with which he was shortly afterwards seized was attributed to the anger of the god.

Seven miles lower down on the right, the Tiber receives the Nestore, a large and impetuous torrent, or *torrentaccio*, as it is called by the Italians. The Nestore, where it enters the Tiber flows in a bed of sand and shingle no less than a third of a Roman mile in width, and after heavy rains must bring down an enormous body of water. Into the Cina, one of its tributaries, by means of a tunnel, the overflow of the lake of Thrasymene is discharged. The emissary originates in the south-eastern bay of the lake, but when, or by whom, the work was executed is a matter of dispute. Thirty and a half miles further on, the Tiber is joined by the Chiana (anciently Clanis), which, after uniting with the Paglia, flows into it on the same side as the Nestore and in the neighbourhood of Orvieto.

The Paglia rises in the high volcanic mountain of Monte Amiata, and in summer is nearly dry; but its broad stony channel at Acquapendente shows what a contribution it must bring to the main stream in time of floods.

The Chiana, which from the black and muddy colour of its waters has received the name of the Lethe of Tuscany, but which might with more propriety be called the Tuscan Cocytus, was once a single stream originating in the neighbourhood of Arezzo, and flowing southward into the Tiber. But in the Middle Ages a large portion of the valley in which it flowed was filled up by the *débris* which in time of floods was brought down by the lateral torrents. A sort of plateau was thus formed, sloping at its edges towards the valleys of the Tiber and the Arno. The streams which entered this plateau stagnated in the level which it formed, converting it into an unproductive and unhealthy marsh, the abode of malaria and the pest-house of Dante's *Purgatorio*. They then flowed over the northern and southern edges of the plateau, and, uniting with others, formed two distinct rivers called the Tuscan and Roman Chianas.

The torrent of the Tresa, rising not far from the lake of Thrasymene, and now diverted into the lake of Chiusi, may be considered as the head waters of the Tuscan Chiana, the torrent of the Astrone, rising in the direction of Montepulciano, as the main branch of the Roman Chiana. The two are connected by canals and wet ditches, so that it is conceivable that a small piece of wood thrown into one of these might, according to circumstances and the direction of the wind, find its way to Florence or to Rome.

The district which I have described, the celebrated Val di Chiana, is now one of the most productive regions of Italy, green with vineyards and pastures, and golden with waving crops. Nor is it unhealthy, except in the immediate vicinity of the lakes. The change was effected by canalizing the streams, and by the process called warp-

ing, which is the method adopted in Lincolnshire for reclaiming land from the sea. A certain space was enclosed with banks, into which the streams were diverted when they were swollen and charged with mud. The opening was then closed with a floodgate, and the water left to deposit the matter which it held in suspension. In this way an inch or two of soil was gained every year, until the land became sufficiently dry and firm. It was then sown with crops, and planted with trees, which served still further to purify the air by decomposing with their leaves and fixing in their tissues the vapours which had given the Val di Chiana so deadly a name.

Turning again to the south-east and at a distance of 136½ miles from its source, the Tiber is swelled by the united streams of the Neva, the Velino, and the Salto. The Neva, the "*sulphurea Nar albus aqua*" of Virgil, and "*Narque albescentibus undis*" of Silius Italicus, rises at the foot of the lofty peak of Monte Vettore, part of the Sibylline range, and is the tributary which is most affected by the melting of the snows.

The Velino also has its source in the great central chain of the Apennines, and after being joined by the Salto and Turano, forms the cascade of Terni by dashing over the precipice which terminates the valley, and hastens to meet the Neva. The Salto, rising in the kingdom of Naples, flows northward for fifty miles, and after passing beneath the lofty range of Monte Velino, and receiving a contribution from its snows, mingles its waters with the Velino. Swelled by these tributaries the Neva rolls along a full and rapid stream, and sweeping past Terni and Narni, loses itself in the Tiber.

About sixty-four miles lower down, and four and a half

above Rome by the river, the Tiber is joined by the Anio, or Teverone, the most important, with the exception of the Neva, of all its tributaries. No river is better known than the Anio. The scenery of its valley, the classical associations of its neighbourhood, and the celebrated cascades of Tivoli, have made it the favourite resort of tourists. The Anio rises in the mountains of the Hernici, part of the modern Abruzzi, and after flowing for about thirty-six miles through a narrow valley whose general course is to the west, precipitates itself into the gorge which is overlooked by the town of Tivoli; emerging from which it turns west-south-west and joins the Tiber, after a further course of twenty miles. Midway between its source and Tivoli, it passes the town of Subiaco, anciently Sublaqueum, which derives its name from three picturesque lakes, "*tres lacus amœnitate nobilis.*" Tivoli is well known to have been the favourite retreat of the wealthy Romans from the turmoil, and what Horace calls the "fumus," of Rome. The names and ruins of these villas yet remain, but no trace is left of those which once adorned the banks of the Tiber, and perhaps of the Anio in the lower part of its course.

Pliny the younger calls the Anio "*delicatissimus amnium,*" "softest and gentlest of rivers"; and adds "that it was for this reason invited, as it were, and retained by the neighbouring villas" for their own exclusive use. Yet, this "delicate river" indulged occasionally in the wildest escapades, and Pliny himself, in this very letter, describes an inundation in which it swept away woods, undermined hills, and committed extraordinary havoc among the neighbouring farms. From this time to the year 1826 it was a source of apprehension to the people of Tivoli, and an anxiety to the government at Rome, which expended con-

siderable sums in trying to prevent some great calamity, or in repairing the damage which had been done. Once since the time of Strabo the river is thought to have changed its course, discharging itself at a lower level into the Grotto of Neptune, but still forming a lofty and picturesque cascade.

At different periods it had destroyed buildings, undermined the foundation of others, and defied every effort to control its violence. At length these floods culminated in the great inundation of 1826, which entirely altered the character of the cascade, and necessitated the formation of the tunnel through Monte Catillo.

The work was let on contract to two rival firms, and pushed forward with such vigour that, though it was considered a most arduous undertaking in those times, it was completed in 1836, during the Pontificate of Gregory XVI.

From the Anio, or its tributaries, was drawn the water which supplied the principal aqueducts of Rome, the Anio Vetus, the Marcia, the Anio Novus, and the Claudia. When the original Aqua Appia and Anio Vetus were found insufficient for the increasing wants of Rome, it was resolved to seek for a fresh supply. This was found in a stream of limpid water rising about thirty-six miles from Rome in the Marsian Mountains, and flowing into the Anio. As the water of the Vetus was often turbid after rain, and even the Piscina, or reservoir, through which it was made to pass, often failed to purify it, Quintus Marcius Rex, who was appointed to superintend the work, was desirous that the water of the new aqueduct should be taken from one of the tributaries of the river, and as near as possible to its source.

As the source was in the country beyond the Anio, the aqueduct was of course more expensive than any of the

preceding ones, and the entire length of it was no less than sixty-one miles, of which several were on arches, the rest being subterranean. But, if the expense was greater, the quality of the water was superior to that of any other with which Rome was acquainted.

The aqueducts of the Anio Novus, and the Aqua Claudia, of which I have spoken, were completed in the reign of Claudius. The Aqua Claudia, which came from springs, was nearly equal in quality to the Marcia, while the two Anios were often turbid, even in fine weather, from the falling in of their banks. But Claudius improved the quality of the Anio Novus, by abandoning the river at the point from which the water had been drawn, and taking it from a lake, out of which the stream issues limpid, after having deposited the greater part of its impurities.

Altogether, according to the calculation of Fea, half the volume of Anio was abstracted by the four aqueducts which have been mentioned.

Four tributaries remain to be described—the Cremera, the Allia, the Aqua Crabra, and the Almo—streams insignificant in size, but famous in the annals of Rome, or possessing an interest for the classical scholar and the archæologist. The Cremera, a mere brook, over which an active person might leap, rises in the little lake Baccano, and flowing past the site of Veii, crosses the Flaminian way about six miles from Rome.

This brook must not be confounded with another a little higher up, and which is a rivulet unknown to fame. The Cremera is associated, as every student of Roman history is aware, with the patriotic devotion of the Fabii.

On the banks of the Allia, the "*flebilis Allia*" of Ovid, a still smaller stream, though dignified by the historians

with the name of river, was fought a battle with the Gauls, in which the Romans sustained a signal defeat.

The Allia cannot be identified with certainty, but it is supposed to be a small stream flowing in a deep ravine, which joins the Tiber on the side opposite to Veii, and about three miles above Castel Guibileo, the site of the ancient Fidenæ. This stream agrees with the description of Livy.

The Aqua Crabra is generally known by the name of the Marrana, but is also called Aqua Mariana, and Marrana del Maria; Marrana being a name frequently given to brooks by the modern Romans. Thus we have Marrana della Caffarella, another name for the Almone, and Marrana di Grotta perfetta. The rivulet anciently known by the name of the Aqua Crabra rises in the heart of the Alban hills, and after passing beneath the heights on which Tusculum and Frascati are situated, turned northwards in obedience to the configuration of the ground and flowed into the Anio. But, at some unknown period after the fall of the Roman Empire, it was diverted by means of a tunnel into the channel in which it at present runs, for the purpose of turning mills and irrigating the land. The little stream, also, which flows in the valley between Marino and the ridge encircling the Alban lake, whose source is considered by some to be the Aqua Ferentina of Livy, is conveyed through a similar tunnel to swell the scanty waters of the Aqua Crabra. In ancient times this rivulet was considered of such importance to the people of Tusculum, who lived out of the way of the great aqueducts, that Agrippa, as Frontinus tells us, consented not to turn it into the "caput," or well head, of the Aqua Julia, as he had originally proposed. It was looked upon as a treasure to be doled out in

measures to the thirsty people of Tusculum, and was often contended for by legal proceedings. Cicero, in his *Oration de lege Agraria, III, 2*, informs us that he paid rates to the authorities of Tusculum for his share of the precious fluid. And in his *Oration pro Balbo, ch. 22*, he refers to a litigation with the municipality which furnished the water, probably on account of the deficient supply. In this action "he was in the habit," he tells us, "of consulting the lawyer, Tugio, on account of his long experience in similar cases." Tugio seems to have justified his choice, and to have frightened the municipality into granting a more abundant supply, for we find Cicero in his letter to Tiro, observing, "that now there was more water than enough." "I should like to know," he says, "how the business of the Aqua Crabra is going on, though now indeed there is more water than enough."

The Almo is the stream which flows in the valley of Caffarella, close to the Nymphæum, which does duty for the grotto of Egeria. Its most remote source is about six miles from Rome, in the direction of Albano, and this is usually dry; so that the Almo is with great propriety called "*brevissimus*," in comparison with the other rivers which Ovid is enumerating. The perennial source is at Aqua Santa, not more than three miles from the city. The stream that rises in the valley between Marino and the Alban lake is represented in most maps as flowing into the Almo. It is really diverted by a tunnel into the Aqua Crabra. At the junction of the Almo with the Tiber were washed every year, the statue of the Goddess Cybele, her chariot and the sacred instruments of her worship.

Among the remaining tributaries of the Tiber may be enumerated the Farfarus, which is a torrent joining the

Tiber a little above Correse. Also the little stream, the Aqua Albana, which is discharged by the emissary of the Alban Lake, a work executed 393 years before Christ.

THE SHANNON

ARTHUR SHADWELL MARTIN

THE greatest body of running water in the British Isles has long claimed and received the love, admiration and praise of natives and foreigners. Its banks are fringed with ruins of castles, round towers, abbeys and churches, and its islands and hills reek with historical associations, pagan folklore and mediæval tradition. Steamers now run practically from its mouth to its source, and to the tourist all its beauties are now displayed. The enthusiasm of foreigners over the beautiful stream equals that of Erin's own sons. Writing in 1844, Johann Georg Kohl said:

"Well may the Irish speak of the '*Royal* Shannon,' for he *is* the king of all their rivers. A foreigner, when he thinks of some of our large continental streams, may at first consider the epithet somewhat of an exaggeration, but let him go down this glorious river and its lakes, and he will be at no loss to understand that royal majesty, in the matter of rivers, may be quite independent of length or extent.

"The British Islands certainly can boast of no second stream, the beauties of whose banks could for a moment be compared to those of the Shannon.

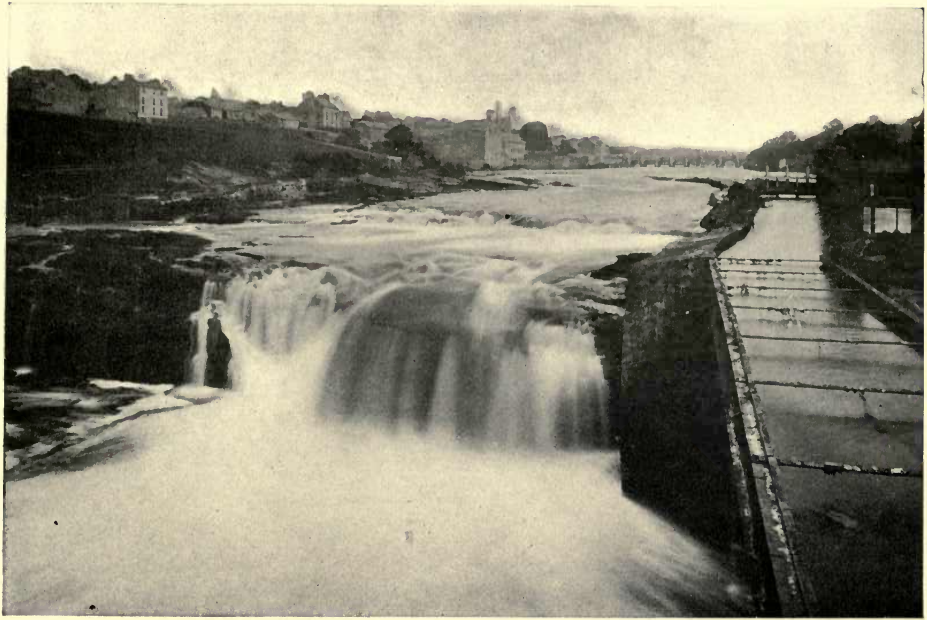
"At his very birth he is broad and mighty, for he starts on his course strong with the tribute of a lake (Lough Allen), and traverses the middle of Ireland, in a direction from north-east to south-west. Thrice again he widens out into a lake; first into the little Lough Boffin, then into the

larger Lough Ree, and lastly, when he has got more than half way to the ocean, into the yet longer Lough Derg. Below Limerick he opens into a noble estuary, and when at length he falls into the sea between Loop Head and Kerry Head, the glorious river has completed a course of two hundred and fourteen English miles. The greater part of the Shannon runs through the central plain which separates the mountainous north from the mountainous south.

"It was on a beautiful day that I embarked to descend the Shannon. Flowing out of a lake, and forming several other lakes in its progress, the water is extremely clear and beautiful. The movement is in general equable, excepting a few rapids which are avoided by means of canals. The banks, too, are pleasing to the eye. Large green meadows stretch along the sides of the river, and villages alternate with handsome country seats, surrounded by their parks. Herons abound along the margin, and many of these beautiful birds were continually wheeling over us in the air, their plumage glittering again in the rays of the sun.

"We arrived at Banagher. Then gliding along by Redwood Castle and the beautiful meadows of Portumna, we left the town of Portumna to our right, and entered the waters of Lough Derg. The steamer in which we had hitherto travelled was of small dimensions, with a wheel under the stern, to allow of its passing through some canals of no great breadth; but on the broad lake a new and larger vessel prepared to receive us. The two steamers came close to one another, to exchange their respective passengers, and their manœuvre, as they swept round on the wide water, pleased me much.

"Of the lakes that like so many rich pearls are strung



THE SHANNON

upon the silver thread of the Shannon, Lough Ree and Lough Bodarrig, lying in a level country, and in a great measure surrounded by bogs, present little that is pleasing to the eye. Lough Allen is situated almost wholly within the mountainous districts of the north, and a large portion of Lough Derg is made picturesque by the mountains of the south. Like all Irish lakes, Lough Derg contains a number of small green islands, of which the most renowned is Inniscaltra, an ancient holy place, containing the ruins of seven venerable churches of great antiquity, and the remains of one of those remarkable columnal erections known in Ireland under the name of "round towers." We passed the sacred isle at the distance of a mile and a half, but we could very distinctly make out all its monuments by the aid of a telescope."

It is not every visitor to Shannon's shores that has unqualified praise for the scenery. Thus speaking of the sites selected by the saints of old for their retreats, Cæsar Otway exclaims: "What a dreary place is Glendalough! what a lonely isle is Inniscaltra! what a hideous place is Patrick's Purgatory! what a desolate spot is Clonmacnoise! From the hill of Bentullagh on which we now stood, the numerous churches, the two round towers, the curiously overhanging bastion of O'Melaghlin's Castle, all before us to the south, and rising in relief from the dreary sameness of the surrounding red bogs, presented such a picture of tottering ruins and encompassing desolation as I am sure few places in Europe could parallel."

The traveller who wants to see the most accessible beauties of the Shannon usually starts at Limerick and leaves the river at Athlone, though some go as far as Car-

rick on Shannon. The chief loughs traversed are Derg and Ree; and the only towns of any importance are Killaloe, Portumna and Athlone.

About eight miles above Limerick are the Rapids or Falls of Doonass, where the Shannon pours an immense body of water, which above the rapids is forty feet deep and 300 yards wide, through and above a congregation of huge rocks and stones that extend nearly half a mile, and offers not only an unusual scene, but a spectacle approaching much nearer to the sublime than any moderate-sized stream can offer even in the highest cascade.

Castleconnell is beautifully situated on the east bank. It has a popular Spa, and is a famous centre for salmon fishing. The castle, from which the town is named, stands on an isolated rock in the middle of the town. It was anciently the seat of the O'Briens. When Ginkell, William the Third's General, took the castle, he caused it to be dismantled. Castleconnell is famous for its salmon fishing and eel weirs. The Castleconnell fishing rods are famed all over the world.

Eight miles above Castleconnell near the entrance to Lough Derg is Killaloe.

The navigation from Limerick to Killaloe is carried on by canal so as to avoid the rapids of Killaloe and Castleconnell. Killaloe is a charmingly placed village, but it is probably best known as the place above all others in Ireland dear to the heart of the angler. The fine old cathedral, on the site of a much older church, dates from the Twelfth Century. The Choir is used as the parish church. Commencing at Killaloe is Lough Derg, an expansion of the Shannon to the proportions of a lake. The Duke and Duchess of Cornwall and York made a trip up Lough Derg

to Banagher in the summer of 1897, and the route is now known as the "Duke of York" route.

As every one knows, the Shannon is much the largest river in the United Kingdom. Its breadth, where it expands into the long narrow lakes that mark so much of its course, stretches to as much as thirteen miles. Lough Derg, the first of these expanded stretches, is twenty-three miles long, and exceedingly picturesque. Its shining surface, overshadowed by blue hills, is broken here and there by woody islands famous in history and song. Killaloe itself takes its name from the ruined church on the island below the twelve-arched bridge ("the church on the water"). The salmon fisheries here are very important and profitable, and—which is probably more interesting to the traveller—the river is free to every one who possesses a rod and line.

It was here, at the lower end of Lough Derg, that Brian Boru's palace of Kincora once stood, in the Ninth Century. The mound on which it was built is all that remains of a place that displayed, 1,200 years ago, the utmost glory of the fierce, proud Irish kings. The ruined castle of Derry crowns another small islet; and Holy Island, thirty acres in extent, is a spot full of interest. Like Glendalough, it was chosen out, early in the Christian era, for a retreat of piety and learning. One cannot but observe the excellent taste in scenery displayed by the monks of ancient days, in selecting these peaceful refuges from a stormy world. What can be more lovely than the vale of the seven churches, or than Innisfallen Island? and Holy Island compares not at all ill with these still more famous places. St. Caimin, in the early part of the Seventh Century, settled here, and built a monastery, which soon became famous for its learn-

ing. Seven different churches afterwards grew up on the island, and one of the most beautiful round towers in Ireland still raises its head seventy feet above the waters of the lake, among the ruins of these sacred places. This part of the lake is crowded with islands, and the ruined castles and monasteries are very numerous. At the town of Portumna, some miles further on, another stop is made, as the castle and abbey are particularly well worth seeing. This was another spot celebrated for its learning. The monastery of Tirdaglass, whence many manuscripts issued, was founded by St. Columba in the Sixth Century. At Clonmacnoise, further on, the traveller may see the cradle of the ancient art and learning of Ireland, and the most important seat of religion in early days. St. Cearan (early Sixth Century) is especially associated with the spot; the great cathedral was built in his honour, and the holy well, dedicated to the Saint, is still the object of constant pilgrimage. Round towers, ancient Irish crosses, ruined churches and monasteries, are here in abundance. The ancient city of Clonmacnoise has disappeared altogether. This is a place of the greatest possible interest to antiquarians, and even ordinary travellers will find much pleasure in the beauty of the picturesque ruins.

At Banagher is the fortified bridge of seven arches, protected by two towers and a battery. This is all the more interesting, for, not being an antiquity in any sense, it was finished in 1843, as a matter of fact.

Above Lough Derg, the country is fertile, but not especially striking until Lough Ree is reached. This second great expansion of the river fairly rivals the first in beauty. Of its twenty-seven islands, the most attractive is Inis Clothran, on which the famous Queen Maev of Connaught

spent her declining years. She is said to have built a splendid stone house for herself here, and lived on the island until she died, at the age of a hundred and two. Some ruins still remain to mark the spot, although the date of Queen Maev goes back nearly two thousand years. Antiquarians consider that Shakespeare's fairy Queen Mab was a development of the many legends told about this powerful, wicked, and fascinating Queen of far-off days.

Portumna, at the head of the lake, commands fine views of Lough Derg, and the hilly land to the west. After leaving this town the scenery becomes dull and monotonous till we reach Meelick, where the river is so devious that a canal rejoins the Shannon at the mouth of the Little Brosna. Immediately above, the stream begins to divide and becomes very tortuous till Banagher is reached.

At the upper end of Lough Ree is Lanesborough, a small town with a fine bridge of six arches and a swivel arch. From this point the sail to Tarmonbarry presents little beauty or interest. The country is generally a wide extent of bog, abounding in remains of trees and the extinct Irish elk. Opposite Tarmonbarry, the Royal Canal, communicating with Dublin, joins the Shannon. When the river again widens into Lough Forbes, the Seven Churches of Kilbarry come into view : only three and part of a round tower are now standing. Lough Forbes is triangular in shape, and the shores are low boggy land not destitute of a certain quiet beauty. Lough Boderg shaped like a T is the only remaining sheet of water before reaching Carrick on Shannon where the tourist's voyage generally ends.

THE DANUBE

I. BOWES

NEXT to the Volga, the Danube is the largest river in Europe, and for volume of water and commercial importance it far exceeds that river. It is estimated that the Danube carries more water to the sea than all the rivers of France.

The river rises at the head of a pleasant little valley high up in the mountains of the Black Forest; coming tumbling down the rocks a tiny stream of clear water, and, gathering strength and volume from numerous springs and rivulets, it cuts a deep channel into the rich soil and dances gaily along, presently to be joined by the Brigach and its twin-sister, the Brege, which rise about ten miles further to the south. These are the highest sources of the mighty River Danube, the great water highway of Europe, celebrated for ages in legend and song and in ancient and modern history for important military events, and, in its flow of nearly 2,000 miles to the Black Sea, unfolding the most remarkable panoramas of natural beauty known to the geographer; whilst on its banks may be found groups of the most interesting nationalities of the world.

Donaueschingen, a tidy little town in the Grand Duchy of Baden, is sometimes called the source of the Danube. It is situated about a mile and a half below the point where the Brigach and the Brege join the river, which from this point is called the Donau or Danube, and it is the head of



THE DANUBE

the navigation for small boats on the upper river. Between here and Ulm there are twenty-one weirs and dams, and many pleasant villages, pretty little towns, ruined castles, and princely residences; amongst the latter may be named Hohenzollern, near Sigmaringen, the seat of the Imperial family of Prussia. The scenery in the locality of the castle is of great beauty, and the town, pleasantly situated on the banks of the river, has a charming appearance.

The river below Sigmaringen flows through a broad, fertile valley, and with a quicker current, as the banks have been partially canalized; and small towns, with names of wondrous length and ponderous sound, such as Munderkingen, Kiedlingen, Reichenstein, etc., suggest places that are or have been of great importance. In the distance the great tower of the Cathedral of Ulm is seen rising up out of the low horizon. Ulm is a great military stronghold, and the old town a maze of narrow, crooked streets. The Cathedral is said to be next in size to that at Cologne, and is a fine specimen of Gothic architecture, with the highest stone tower in the world.

Below Ulm several smaller towns are passed before reaching Ratisbon, a city of 40,000 inhabitants, famous for many historical events. The Cathedral of Saint Peter is one of the architectural glories of Germany. Freight steamers, barges, tugboats, and passenger steamers abound on this part of the river. Long flat boats sixty feet long, such as we see on the Rhine, pass down to the Lower Danube, laden with grain, timber, etc.

Linz, with its 500,000 inhabitants, is an interesting town; and the river scenery, between here and Vienna, is said to rival the Rhine scenery, the hills being more varied in outline and the slopes richer in verdure.

At Vienna the river is more crowded still, and is crossed by some fine road and railway bridges; and many show sights are here, such as cathedrals, historical buildings, etc., and more than a fair share of *cafés*, theatres and music-halls. In this respect it rivals Paris, and, some say, exceeds it in wickedness.

After leaving Vienna, Hainburg, Kieben and Presburg (with its 50,000 inhabitants), where the Hungarian kings have for ages been crowned, are passed; then Komorn, and through the fertile plains of Hungary to Buda Pesth, a beautiful, prosperous city, with a population of 500,000. It is said that the extensive quays facing the river and the imposing buildings are the finest on the whole course of the Danube. Lower down the river the inhabitants on either bank show distinct traces of Magyar descent.

And now leaving the Hungarian territory for Servia, Belgrade with its great fortress comes in sight. Many parts of the city are Turkish in appearance, and the inhabitants are a mixture of Hungarians, Turks and Servians.

About sixty miles below Belgrade the river leaves the Hungarian plains, and at Bazias the chief hindrances to the navigation of the Danube begin and extend to Sibb, a distance of about eighty-two miles. The obstructions may be divided into four sections, viz:—No. 1. The Stenka Rapids; No. 2. The Kozla Dojke; No. 3. The Greben Section; and No. 4. The Iron Gates. The first named rapids are about 1,100 yards long; nine miles lower down the second section—about one and a half miles long—begins, and the river is narrowed from about 1,000 yards in width to about 300 and in some places 170 yards. These rapids are caused by rocks in the bed of the river, some of which are almost dry at low water, extending nearly across

it, and causing sudden alterations in the currents and dangerous whirlpools and eddies.

At Greben, four miles lower down, there were formidable obstacles to be overcome, and some of the heaviest work in the undertaking had to be faced; for at this point a spur of the Greben Mountain juts out into the river, and suddenly reduces its width at low water. When the snow and ice in the upper reaches of the river melt, or in heavy rain, the river rapidly rises, and, being blocked by these obstacles, causes damaging floods in the fertile valleys of Hungary.

Below the Greben rapids the river widens out to about one and a half miles, and passing the cutting and training walls at the rapids of Jucz enters the Kazan defile, which is said to be the most picturesque part of the Lower Danube. The cliffs, of great height, approach nearer and nearer to each other, until the river is contracted to 120 yards wide.

Passing through this dark and sombre defile into the valley of Dubova, it widens to 500 metres; the mountains again approach and reduce the width to about 200 yards. The depth at these straits varies from ten metres to fifty metres. It was through this defile that Trajan, nearly 2,000 years ago, made riverside roads and towing paths in continuation of the small canals and waterways to evade the rocks and currents and to facilitate the transport of his armies and military trains for the Roman campaigns in Central Europe. The ruins of these works are a proof of the great labour expended upon them, and also of the skill in engineering possessed by the Romans in those days. The tablets engraved on the rocks, still in part visible, commemorate their heroic deeds.

Following our course down the river, at ten kilometres

from the Kazan, we come to Orsova, a rather important place of call for steamers and trading-vessels; and, now that the river is navigable for larger vessels, this place is destined, from its railway communications, etc., to become a great trading centre.

At a distance of eight kilometres from Orsova, the Iron Gate, situated between Roumania and Servia begins, and is for a length of about three kilometres the largest and most dangerous obstacle on the Lower Danube. The rocks in the channel impede the current, forming dangerous eddies and cataracts.

The Prigrada Rock rises above low water with a width of 250 metres and a length of about two kilometres, stretches in a crooked line across the river to the Roumanian shore, with a narrow channel, through which vessels of light draught only can be navigated with difficulty. The river, pouring over this rock, forms dangerous whirlpools and cataracts, requiring the greatest watchfulness, care, and experience on the part of the navigator to overcome the dangers of what has well been called "The Iron Gates." Hundreds of steamers and vessels have been wrecked in attempting this dangerous passage.

Like many other great projects many schemes had been proposed and plans for carrying them out by different authorities had been considered, but nothing definite was done until in 1888, the Hungarian Government, under rights conferred upon it by the Berlin Treaty of 1878, and the London Treaty of 1871, undertook the work of construction and administration under the conditions of the treaties which gave them the power to levy tolls on trade ships for covering the expenses of the works.

The ceremony of the inauguration took place on the

27th of September, 1896, when the Emperor of Austria, King Charles of Roumania, and King Alexander of Servia, with an immense gathering of bishops, generals and diplomatic representatives, etc., met at Orsova, and proceeded through the Iron Gates and the beautiful and romantic Kazan Pass with a procession of six vessels, which included a monitor and torpedo boat, and accompanied by a continuous discharge of artillery and the loud huzzas of the immense gathering of soldiers, visitors and inhabitants.

Below the Iron Gates the river broadens out and the scenery is tame and uninteresting, for the vast plains of Roumania extend from the foot of the hills here to the shores of the Black Sea, and the maritime and commercial aspects of the surroundings begin to manifest themselves—the river becomes more crowded with craft of all kinds as we approach the towns on the Lower Danube.

We pass Widin, and, lower down, Sistova where, in the Russo-Turkish war, the Russians crossed the river to Plevna and the Balkan passes. Thirty-five miles lower down we reach Rustchuk, the most important Bulgarian town on the river, and fast becoming a great emporium of trade, being on the main line of railway to Constantinople, *viâ* Varna.

We then pass Silistria and approach the longest railroad bridge in the world. This bridge crosses the Danube below Silistria, and carries the railway from Kustendji on the Black Sea into Roumania.

Braila, 125 miles from the mouth of the river, is the chief port for the shipment of produce, etc., from the grain-growing regions of Roumania and Northern Bulgaria. Here are extensive docks, grain elevators, and thousands of men of all nationalities engaged in loading steamers and

sailing vessels from all countries. The British flag is everywhere present. As a commercial port the place is fast outstripping its neighbour, Galatz, fifteen miles lower down.

From Galatz to the sea, the navigation of the river, the dredging, removing of obstacles, levying of tolls, etc., is controlled by an International Commission established by treaty in 1878, since which date great improvements have been made, chiefly in the lower reaches and the Sulina mouth of the river, by the construction of groynes, revetments and cuttings to avoid the bends, and constant dredgings by powerful dredgers are carried on.

THE NIGER

J. HAMPDEN JACKSON

IT will probably be a century hence before men fully realize the extent of the world's debt to those English noblemen and gentlemen who in the last decade of the last century, sent forth Mungo Park as their emissary to find and trace specifically upon the map all he might discover as to this mysterious river. Their choice of the man was exceptionally fortunate.

I pass over all their disappointments, and the persistent courage with which they bore them, and need only remind you that these Englishmen of the African Association—soon afterwards to become the Royal Geographical Society—not only found and equipped Park and Clapperton and Lander, but it was at *their* cost, on *their* business and for *their* entertainment alone, that Barth, the German explorer (whose brilliant and most accurate explorations are in our day constantly credited to his own nation instead of ours), undertook and finished his great journeys into Hausaland from North Africa.

We follow Park from his first discovery of the Niger at Sego, look with him on the breadth at that spot of its stream, realize his disappointment at having to return to England; his joy at coming for the second time to Bambarra, and then his voyage in the little craft bearing his country's flag down to the devious waters of the unexplored river; past Kabara, from whose hill-top he might have

seen Timbuktu had he but known and had he not been attacked there by the people on trying to land. Next we sail with Park past Birni, close to the capital of the former Songhay Empire, past Say, up the stream to Boussa, the capital of Borgu, 650 miles from the sea; and here on that memorable day of 1806 we see poor Park meet his death, and I hope it may not be long ere some worthy obelisk at the spot shall set forth indelibly the great record of his mission.

We come now to Richard Lander, and in like manner I take you over the route of this famous voyager, from Badagry (whence he struck inland) to Boussa, where he found the relics of Park, and then in his boats down stream past Mount Jebba—standing midway in the river, with an elevation above sea level of some 300 feet—past Rabbah—then the largest city on the Niger—to Egga, where the great ferry of the Kano-Ilorin traffic makes prosperous the chief port of Nupé, and now—in the distance—appears the table-topped Mount Patteh, rising 1,300 feet from the right bank, and as we sail with Lander under its shadow there opens out before us the noble confluence at Lokoja, where the Benué, the Niger's mighty tributary, pours its mile-broad current into this great West African river. Next Lander passes between the jagged and stunted peaks of the Nigretian Alps, and nearing Idda, sees its bold precipices of red sandstone rear themselves on the left bank, and admires the giant baobab trees, the clustered round-roofed huts, and the busy throngs of Igara people passing to and fro from the riverside. But our explorer has vowed to follow the great Niger to its outflow, and we are still some 280 miles from the sea.

So Lander passes on in his boats, and nearing Asaba—

now the seat of English government on the river—he notes that the native houses are now all of rectangular shape, and the people of Eboe type, and soon he is at Abo, and the tidal waters are recognized just as the ruffians of the Brass slaving fleet rush upon him and—capsizing his craft—Lander barely escapes with his life to find his brother drowning also. Rescued at last, John Lander is brought prisoner, together with Richard to the Brass mouth of the Niger, and their sufferings whilst waiting release and subsequently until landed at Fernando Po may well have made them dread the name of Brassmen. It may be that some day at Brass, or Akassa, English hands will raise a fitting and permanent memorial to this modest, uncultured and sterling character, who solved for all mankind the greatest geographical problem of his time, and opened the door for European commerce and civilization into West Central Africa. It must not be forgotten that MacQueen had all along contended that the Niger would be found to issue into the Atlantic through the swamps of the Bights of Benin and Biafra, nor are the reasons now obscure that account for that long hiding of geographical truth in the Gulf of Guinea. The Niger Delta is one covering 14,000 square miles; the Delta rivers creep into the sea almost unperceived through the low-level mangrove swamp; the whole region reeks with fevers and dysentery, and at the time of Lander's discovery the only trade to be done in that "God-forgotten Guinea" was the slave-trade. Such white men as ventured to the Delta, therefore, were bent on secrecy rather than on discovery; and this had been the state of things for centuries. No wonder that the Niger had been a mystery, but it was a mystery no more.

The next step for its exploration was taken by Liverpool.

Macgregor Laird raised a large fund among his merchant friends on the exchange, and added thereto a large part of his own fortune, built and equipped two steamships—the *Quorra* and *Alburka*—and (with but little aid from the Government) took charge personally of this bold expedition, and in 1832 sailed for the Niger. Now, look at these banks forty feet at least above the river level, and remember that for three to four months of the year the villages lining them are simply floating in the vast waste of the Niger inundations. Mr. Laird found by a bitter experience that it was all very well to steam up the Niger when the stream was at flood, but when your crew were all down with fever and the river began to fall at the rate of a foot per day, the least accident—such as the stranding of the little *Quorra*—locked you up bag and baggage for a whole twelve months, and brought you face to face with terrible dangers. The mortality on board the steamers was awful, but Laird kept the expedition well in hand; he explored a great part of the upper middle Niger, a considerable distance up the Benué, and established the first English trading factories, 350 miles from the mouth of the Niger, ere his return to Liverpool. Like all other travellers who have seen the Benué, Laird was greatly impressed with the volume and purity of its waters, the beauty of its landscape on either bank, and the rich promise of development in its already quickened commerce. Look at the woodland beauty at Ribago, for instance; or the fine cultivated plain at Yola; and the impressive rock-fortress at Imaha. And see these fine Hausa peoples who inhabit the Sokoto and Bornu countries of the inter-riverine plateau. They are an ancient race, grave and industrious, of fine physique and highly intellectual phrenological type.

Centuries ago Macrisi—the Egyptian historian—told of their gourd-ferries, and the world laughed at such a "traveller's tale"; but here you see them for yourselves. Centuries ago men wrote of the vast city of Timbuktu, but what is Timbuktu to Kano, the Hausa capital? Look at this wall surrounding Sokoto City, and think of the wall of Kano being as high as that and fifteen miles round! The Fulah aristocracy live at Sokoto, and their Sultan bears spiritual rule over the greater part of Hausaland; his temporal power is no myth, either, for in 1891 he raised an army of 40,000 men—half of whom were cavalry—under the eyes of Monteil. But the crumbling houses of Sokoto tell their own tale of a city that has long passed its zenith, and like Timbuktu, whose population has fallen from 200,000 to 7,000, like Katsena, whose population has fallen from 100,000 to 6,000, so Sokoto is daily yielding its temporal sceptre to Kano, the city of markets and manufactures, the centre of literature as well as of prosperous agriculture, the starting-point of the Soudan caravans, the central slave market, cloth market, metal market and the busy focus of all industries. See the great market square in which 30,000 people assemble for commercial exchange every week; these fourteen gates, through which the hosts of organized caravans are ever issuing, most of them 600 or 800 strong at the very least, and twenty of which go every year to Salaga for Kola-nut alone! Think of the Mecca pilgrims who all assembled here to form their great cavalcades yearly; of the 60,000 artificers and cultivators living in this Kano, with its enclosed fields of rich crops, its leather factories, shoe and sandal factories, dyeing works, cotton spinning and weaving, basket making, brass manufacture and ornamentation, etc. And remember that,

thanks to our English chartered companies, this Kano, and these fine Hausa people—whose language has long been the key-tongue of all trade in Central Africa—are brought securely under the flag and influence of Great Britain. It is, from our point of view, a drawback that Kano lies at an unhealthy level, and its people defy every sanitary decency in their abbatoir and cemetery arrangements, but that is their way of being happy. Katsena is much more salubrious, having 1,500 feet of elevation.

Ere long, under British tutelage, and freed from dread of the Fulah slave-raider, the rascal who raids his own people for the mere joy of it, freed from this curse, the Hausa States will rise to preëminence through the aptitude and capacity for discipline inherent in that virile people.

I must pass over Bornu and its great chief city of Kuka, but would like to dwell for a moment on the deeply interesting fact that here—in the Chartered State of British Nigretia—we tread upon the dust of empires. At the time of our Heptarchy this very Bornu was the seat of a Negro empire covering a million and a half square miles, and extending from the Niger to the Nile. And Sokoto and Gandu—our Treaty states—formed but part of the Negro empire of Songhay, having its capital at Gogo on the Niger, and extending westward and northward as far as the Atlantic and Morocco.

THE AMAZON

JOSEPH JONES

THE main stream of the Amazon is about 4,000 miles long—long enough that is to go in a circle twice round the British Isles, or 600 miles longer than the voyage from Liverpool to New York. For the lowest 250 miles of its course it is fifty miles wide, or if the Island of Marajo in its mouth be regarded as a huge sand bank, which is what it really is, then it is 200 miles wide at its mouth. In other words, one might take the whole of Scotland, push it into the mouth of this river and leave only a small piece projecting. The Amazon has nineteen very large tributaries, each of which is really a gigantic river in itself, and through these tributaries it is connected with the Orinoco and the River Plata. The Amazon rises near the west coast of South America, about sixty miles from Lima in Peru, and runs into the Atlantic, traversing nearly the whole width of the widest part of South America in its course. Its depth in places is twenty fathoms or 120 feet. It drains an area nearly the size of all Europe, and is the largest body of fresh water in the world. Its average speed of flow is two and a half miles per hour. Hence in going up-stream a boat hugs the bank to avoid the current, whilst in descending it sails in mid-stream in order to obtain full advantage of the same. As may be guessed, progress is quicker down-stream than up. The influence of its flow can be felt 150 miles from the shore. On one occasion the mess-room

steward filled the filter direct from the sea when the ship was long out of sight of land, yet the water was only very slightly brackish. The inland navigation of the Amazon and its branches extends over 20,000 miles. The name is supposed to be derived from "Amassona," the Indian word for "boat-destroyer," on account of the tidal wave which rages in the channel to the north of the Island of Marajo, and on account of which boats enter by the south channel.

The river is high at the end of the rainy season and low after the dry season, but even at low river the ship in which I sailed, an ocean-going steamer, experienced no difficulty in sailing as far as Manâos. The difference in level is a matter of thirty feet, so that whereas in August you step out of a small boat on to the landing-stage, in October, when the river is about at its lowest, you have to walk on planks, from the boat to the foot of the landing-stage, mount this by a ladder and go ashore.

Being so near the equator, the Amazon is in a warm district. In the coolest part of the ship the temperature used to rise to 84° Fahrenheit in the afternoon, whilst in the sun 120° Fahrenheit was registered, and some of the pitch in the seams of the deck was melted. This was when ascending the river. There is a ten knot breeze from the sea which makes it cooler on returning, but on the inward journey when travelling with the wind and at practically the same speed, one is of course in a dead calm and uncomfortably hot. The river water itself at 6 A. M., was always between 88° Fahrenheit and 89° Fahrenheit.

Besides steamers the Amazon is navigated by battalongs, wooden craft, about twelve yards in length, covered with an awning of palm branches, which come from Peru and elsewhere with native produce, are manned by Indians who

live aboard, and which take two months to get back home from Manâos against the stream. Smaller boats are driven by square sails of blue and white cotton, which bear traces of Manchester origin, and there are also native canoes propelled by paddles.

The Indians fish in an interesting manner by means of bow and arrow, with a line attached to the arrow. If they can get a couple of arrows firmly shot in they can usually haul in a river turtle or other large fish. There is a large fish with red flesh which serves the people in some parts instead of beef (cattle being dear). Thus they don't fulfil the old definition of an angler as "a worm at one end and a fool at the other." River turtle when caught are laid on their backs, in which position they are helpless, and one on board the ship laid eighty-six eggs at one break whilst in this position. The eggs are spherical, covered with a flexible limy shell, and resemble in appearance a small tennis-ball. They are a treat out there, where eggs are very scarce. The flesh of this kind of turtle is rather tough and not unlike pork.

A great variety of animal life is to be found, including mosquitoes, cockroaches, moths, butterflies, alligators, snakes, tarantulas, centipedes, and grasshoppers.

The savage people, who live some little distance from the river, are of about our average height and build, walnut-coloured, with long straight jet-black hair. In war they fight with bamboo-headed spears and poisoned arrows, the latter propelled by a powerful bow seven feet long. The arrow-heads, of bone, are dipped in snake venom and inflict a mortal wound. The venom is said to be procured by boiling snakes' heads to extract it from the glands and evaporating the solution to almost dryness.

Right inland the tribes often have battles, and the victors kill the women and children of the vanquished. They have a horrible habit of cutting off the heads of girls, skinning them, and curing the skin in such a way that it shrinks, but retains its colour and texture, when they stuff it, producing a head the size of one's fist, but perfect in shape. They sell them at from £12 to £30 to Europeans, who ought to know better than to buy them.

The civilized people speak the Portuguese language and are of European habits. They are more polite than the British, though this is noticeable by their habits being different from ours rather than by being better. For instance, I have seen a first-class passenger expectorate on the saloon floor when at dinner and never blush, but he would think himself dreadfully impolite if he wore his hat in a restaurant. One is impelled to Max O'Rell's conclusion that "one nation is not better or worse than another. One nation is different from another, that is all."

The money is mostly paper, and there is no paper legal tender less than the milreis (2s. 3d. nominally, actually about 7d.). In Pará small change is given in tram tickets.

The vegetable kingdom numbers 17,000 species and is a veritable fairy-land. Orchids, which with us are so highly prized, are much cheaper there. Very many varieties grow quite wild and are little esteemed. I know one man who had an orange tree in his garden and considered it a nuisance. It crowded out some valuable exotic orchids. He would willingly have let any one take it away but no one would have it. The whole country resembles a gigantic greenhouse, and it is not without a touch of annoyance that a Briton sees beautiful palms and other trees wasted on people who do not appreciate them when they

would be welcome at home. The hanging roots or tendrils, which grow downwards from the branches until they take root in the ground, are quite strange to us, and they offer great resistance to path-making. The most important tree is the india rubber, *Herveia Brasilensis*, which is a large tree, and entirely different from the *Ficus elasticus*, which is commonly called "india rubber" here and grown in rooms. The raw rubber is obtained by incising the bark and collecting the "milk" in a can. A paddle is dipped into this and the milk adhering to it smoked over some burning nuts. This is done with successive dippings until a piece the size of a ham is on the paddle, when a slit is made in the side and the paddle withdrawn. It is quite possible that the wily native may insert a pebble, when he has withdrawn the paddle, since rubber is sold by weight. The best quality is that obtained from the Island of Marajo and known as Island Rubber. This is said to be because a species of nut grows there the smoke of which cures the rubber better than any other kind of smoke. It is said that every kind of rubber requires some admixture of the Pará variety to make it useful in commerce. Many of the rubber cutters live in shanties on the river's edge and keep a canoe moored at the door. More inland the poorer classes live in mud huts built on a framework of light wood. Some of these when whitewashed make very presentable houses, as seen in the view of the main street of Parentins, where the post-office and neighbouring buildings are all of this sort. The cathedrals are generally handsome buildings, and the post-office at Pará is a pretty structure.

The shops are open fronted and usually have no windows, so that at a short distance one cannot tell of what kind they are unless the goods are displayed outside.

The streets are peculiarly named, for instance " Fifteenth of November Square " (date of foundation of the Republic), " Dr. Guimarez Lane," and so on.

The cities bear very evident traces of newness. You may see a public square enclosing a tract of virgin soil and except that the palms are planted in straight rows all the vegetation is natural. There are handsome walnut counters in whitewashed stores and burglar-proof safes inside offices which you could demolish with your foot.

Outside the cities the general appearance of the country gives one an idea of what Britain must have been like at the time of the Roman invasion, and shows how civilization spread along the course of the rivers.

THE YANGTSE CHIANG

W. R. CARLES

THE great river of China which foreigners call the Yangtse Chiang, has its sources on the south-east edge of the great steppes which form Central Asia. Rising almost due north of Calcutta, it flows eastwards for some 500 miles, draining a very considerable area on its way, and then turns southwards until it is penned in by the great parallel ranges which until recent years have hidden it and its great neighbours from European eyes. Even after entering China its course has remained obscure, and the deep rift through which it makes its way to the navigable portion of its waters in Sze Chuen is, save here and there, still unexplored. In the eastern half of Sze Chuen it receives the drainage of another large area, before entering the country commonly known as the Ichang Gorges, and on leaving the Gorges its arms spread north and south from the Yellow River to the Canton province, affording easily navigable routes through the heart of China, and by the Grand Canal to Tientsin.

One of the largest rivers in the world, its importance to China as a waterway in some of the wealthiest and most thickly populated provinces of the empire completely overshadows all the other river-systems of the country.

The actual length of the Yangtse Chiang is at present unknown. The navigable portion, *i. e.*, to Ping-shan Hsien, is 1,550 miles. West of Ping-shan Hsien the river

attains its extreme southern and northern limits; but from a careful measurement made for me of the best maps owned by the Royal Geographical Society, its entire length is not much more than 3,000 miles. The area of drainage is probably between 650,000 and 700,000 square miles.

Between the Tangla Mountains, whose south slopes drain into the Tsang-po and the Salwin Rivers, and the Kuenlun Mountains, which form the south buttress of the Tsaidam steppes, the Yangtse Chiang, even at its source near the 90th meridian, draws on a basin nearly 240 miles in depth from north to south. Below the confluence of the three main streams this basin is somewhat contracted by the north-west south-east trend of the Baian Kara range, and the river is gradually deflected southwards. From the 99th meridian its course is almost due south, passing through the country of the Tanguts, or St. Fans, until at last it enters China.

This part of its course is, roughly speaking, parallel with the Mekong and Salwin Rivers. Penned in by high mountains, which form an extension of the great plateau of Central Asia, these rivers continue in close proximity to each other for nearly two hundred miles.

The immense depth of the gorges through which the Yangtse Chiang has cut its way in Yun Nan and west Sze Chuen, and the extraordinary freaks played by its tributaries on the right bank, have prevented the course of the Yangtse Chiang below the Ya-lung from being thoroughly ascertained. Its course, as laid down by the Jesuits, appears to have been mainly mere guesswork, and some corrections have recently been made. Apparently it here attains its lowest latitude—26° north. The strength of the stream and the height of the banks above the river prevent much use being

made of it for boat traffic, even in the few portions where no dangers exist. The grandness of these gorges culminates in the "Sunbridge," Tai-yang-chiao, a mountain at least 20,000 feet high, "which falls to the Yangtse Chiang in a series of terraces, which from below appear like parallel ridges, and abuts on the river into a precipice or precipices, which must be 8,000 feet above its waters. The main affluent on the right bank received in this part of its course is the Niu-lan River, the gorges of which are also very grand.

Ping-shan is generally regarded as the head of continuous navigation, but Mr. Hosie descended the river by boat from Man-i-sau, forty *li* higher up.

The Fu-ling, Chien Chiang, Kung-t'an or Wu-chiang, which joins the Yangtse Chiang at Fu-Chau on the right bank, is the last considerable tributary received before reaching the gorges leading to Ichang. This river is important as the first of the streams which form the great network of water-communication which binds Peking and Canton with Central China. By the Fu-ling Canton can be reached with only two short portages, and a certain amount of trade with Hankau is carried on by this and the Yuan River in preference to taking goods up the Yangtse Chiang.

The gorges which have shut in the Yangtse Chiang almost from its source close in upon it again below Fu-Chau, and continue to within a few miles of Ichang, contracting the river at one or two points to a width of 150 yards.

In the autumn of 1896, some forty miles below Wan Hsien, a landslip occurred, which carried down into the river a portion of the mountainside, estimated by Mr. Bourne at 700 yards by 400 yards. This at present forms a complete obstacle to any hope of steam navigation

between Ichang and Chung-King, and is much more formidable than the Yeh-tan, Hsin-tan, or any of the other rapids which had hitherto been in question. The Ching-tan, or Hsin-tan, was similarly formed some two hundred and fifty years ago, and it is probable, therefore, that other rapids originated in the same way.

Many rivers are received on either bank before Ichang is reached, of which the most important is the Ching-Chiang, which enters the Yangtse Chiang on the right bank below Ichang.

At Sha-shih, the port of Chong-Chau Fu, the character of the country changes, and an extensive embankment thirty feet high, and from seventy feet to three hundred feet wide at the base, is necessary to protect the country from inundation. The inland water communication extending from Ching-chau to Hankau, on the east, and connecting with the higher parts of the Han River, exposes an immense area to suffering from floods, and the city itself was almost destroyed on one occasion by freshets in the inland waters. The facilities of communication afforded by these routes make Sha-shih a centre of great commercial value, for, independent of the great highway of the Yangtse Chiang and of the canals already mentioned, there are also two large canals on the right bank of the river connecting with the Tung-ting Lake.

Driven onwards by the immense pressure from behind, the waters of the Yangtse Chiang, though moving in an almost perfect plane, have an average surface current throughout the year of two knots at Hankau, where the river is 1,450 yards broad, and has an average depth of forty-two feet. In their course to the sea, the entrance to the Poyang Lake is almost the only place below Wuhsueh at which a passenger

on a steamer can detect the influx of any other river. The main river, its tributaries, and the inland canals all form a part of one great network, which proclaims the delta of the river. The rivers of East Hu Peh, North Kiang Si, An Hui, and Kiang Su, which enter the Yangtse Chiang, are very scarcely recognizable as fresh contributions. Even the waters of the Yellow River drained into the Yangtse Chiang in 1889 without for some time exciting any comment on the addition to its volume.

The coal fields of Hu Nan have of late concentrated attention on the Tung-ting Lake and the valley of the Hsaing as the future trade route between South and Central China; but until recently the valley of the Kan, which is navigable by boat from near the Mei-ling Pass on the frontier of Kwang-Tung to the Poyang Lake, was the great official waterway from Canton to Peking.

The Shu or Chin Chiang, which passes Nan-Chang-Fu to the north-west of the lake, and the Chin or Chin-Chia Chiang, which descends from Kwang-Hsin-Fu on the north-east, are the largest of the other rivers which drain into the Poyang Lake, but part of the waters of Hui-chu-Fu in An Hui are also received by it, and it is noteworthy how many routes exist through the mountains on the east to the Che Kiang and Fu Kein.

The lake, which is reported to be 1,800 square miles in extent, acts, like the Tung-ting Lake, as a great reservoir to check inundations.

On leaving Kiang Si and entering An Hui, the river at Wuhu reaches the point where a branch in olden days made its way southwards to the Chien-tang Gulf, near Hang-Chau Fu. Its course is conjectured to have been through a series of lagoons, known in ancient times as the

five lakes (the Chen-tse) and its delta is presumed not to have extended further east than the Lang-shan Hills, but the whole subject has been a fertile source of controversy. Another branch must have passed by Sung-kiang Fu, and thence near to Shanghai. The south bank of the present course of the river seems to give indications that its bed was in former days on a higher level than now, but at the present day it is only by embankments that the Yangtse Chiang is prevented from finding a way for some of its surplus waters by the Tai Hu and Su-chau to the sea.

The area of the Tai-Hu and the other lakes in the southern delta of the Yangtse Chiang has been estimated at 1,200 square miles (out of a total area of 5,400 square miles), and the total length of the small channels used for irrigation and navigation at 36,000 miles. But these figures are based upon imperfect maps of the country, and therefore not thoroughly trustworthy.

On the north bank of the river an even more marvellous system of artificial waterworks exists. The Huai River, which, with its seventy-two tributaries, is a most important commercial route to north An Hui and Ho Nan, used to find a natural course to the sea to the south of Shan Tung, but has been diverted by a double series of lakes and innumerable canals, and has now no existence as a river east of the Grand Canal. The enlargement of some lakes and the excavations of others were carried out with a view to preventing too great a pressure on any one point of the Grand Canal south of the old course of the Yellow River. The greater part of the Huai now finds its way to the Yangtse Chiang through different openings in a large canal, which runs almost parallel with the river for a distance of 140 miles. North of this canal lies an immense parallel-

ogram, estimated by Père Gandar at 2,300,000 hectares 8,876 square miles) in extent, which is below the water-level. This is intersected by a series of waterways kept under the most careful control, and constitutes one of the most valuable rice fields in the country. To protect it from inundations by the sea, immense dykes and a large canal stretch north and south between the Yangtse Chiang and the old course of the Yellow River. Through these dykes are eighteen openings for canals to the sea, but the main drainage is southwards to the Yangtse Chiang. Between the dykes and the sea lie the flats which form the great salt-fields of Central China.

The Yangtse Chiang in its lower reaches is subject to great and rapid changes, of which little trace is evident to the eye after the lapse of a few years, though the depth of the river in many parts is 140 feet and more. One of the most notable instances is at Chin-Kiang. The earliest European travellers to Peking by the Grand Canal speak invariably of the city of Kua Chau, and only incidentally refer to the passage of the Yangtse Chiang. At present the nearest entrances to the northern and southern portions of the Grand Canal are miles apart; the passage between them, along the waters of the Yangtse Chiang, is often tedious and sometimes impracticable. But at the time the southern entrance to the canal was by a canal which ran between Chin-Kiang and the river, and debouched opposite Golden Island, which was within hailing distance of Kua Chau.

When our fleet ascended the Yangtse Chiang in 1842, it was to the south of this island that it passed. Now to the south of "the island" is cultivated land, studded with trees and villages, and the only existing canal south of

Golden Island is so shallow as to be in winter not navigable even to boats. On the north of the so-called island (Golden Island) the city of Kua Chau has been completely engulfed, and even its north wall has long since been lost to sight.

The changes which are taking place in the lower reaches of the river, in the formation of islands and the alteration of channels, are on an even larger scale. One of the best-known instances is the island of Tsungming, near Shanghai, the population which rose from 12,700 families at the end of the Thirteenth Century to 89,000 at the beginning of the Eighteenth, and is now estimated at 1,150,000 souls.

The great river known to Europeans throughout its whole length as the Yangtse, or Yangtse Chiang, from the name which it bears on Chinese maps in its tidal portion only, undergoes many a change of name. In its higher waters in Tibet, the Murus, or Mur-usu, or Murui-osu ("Tortuous River") joins the Napchitai-ulan-muren and Tokton-ai-ulan-muren, and below their confluence the river is known as the Dre-chu, or Di-chu, variations of which have reached us through different travellers in Bichu, Bicui, Brichu, and the Brius of Marco Polo. Its Tibetan name is Link-arab, and the Chinese name Tung-tien-ho. Where the river forms the boundary between Tibet and China, it is called by Chinese the Chin (or Kin) Sha Chiang, and by the Tibetans the N'geh-chu; near the confluence of the Yalung it is called the Pai-Shui-Chiang, or White Water River; and as far as Sui Fu (or Sii-chu Fu) the Chin Ho. In the gorges of Ichang it is the Ta-ch'a Ho (river of great débris). At Sha-shih it has the name of Ching Chiang, from Ching, an ancient Division of China, through which it passes. Below Hankau it is called the

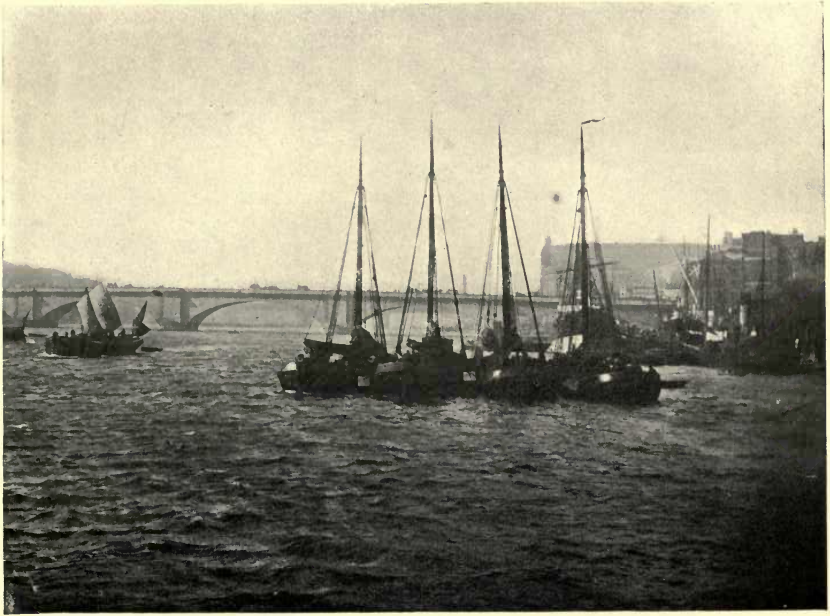
Chiang, Ch'ang Chiang (Long River) Ta Chiang, or Ta-Kuan-Chiang (Great Official River), and for the last two hundred miles of its course it appears as the Yangtse Chiang, a name which it gains from Yang, another of the ancient divisions of the empire, and which is still retained by Yang-chau-Fu.

The fall of the river is very rapid. Mr. Rockhill assigns an altitude of 13,000 feet to the place where he first crossed it, some distance below the junction of the Mur-usu with the Napchitai and Toktonai Rivers, and of 12,000 feet to the ferry where he recrossed it eighty-four miles lower down. From Batang (8,540 feet) to Wa-Wu, in Sze Chuen (1,900 feet), the fall was estimated by Mr. Baber at not less than eight feet per mile; thence to Huang-kuo-shu (1,200 feet) at six feet per mile; below this to Ping-shan (1,025 feet) about three feet; and from Ping-shan to Chung-Ching (630 feet) approximately nineteen inches, and in its lower course less than six inches. The fall between Chung-Ching and Ichang (129 feet) is about thirteen and a half inches; thence to Hankau (fifty-three feet) only two and a half inches, and from Hankau to the sea little more than one inch per mile.

THE THAMES

CHARLES DICKENS, JR.

ALTHOUGH scarcely any of the scenery of the Thames above Oxford is to be mentioned in the same breath with the beauties of Nuneham, of Henley, of Marlow, or of Cliveden, there is still much to attract the lover of nature who is content with quiet and pastoral landscapes and to whom the peaceful solitude through which the greater part of the journey lies, will have a peculiar charm. It is not advisable to take boat at Cricklade. For some distance below this little Wiltshire town the stream is narrow, and in dry seasons uncomfortably shallow. Travellers, therefore, who come to Cricklade, with the intention of seeing as much of the river as possible, may be recommended to take the very pretty walk of about ten miles along the towing-path of the Thames and Severn Canal to Lechlade. Here the river proper may be said to begin. Half a mile after leaving Lechlade on the right is St. John's Lock with an average fall of three feet; and just below it is the St. John's Bridge, with the Trout Inn on the left bank. For some distance below this stream is very narrow, and generally weedy; and, after passing Buscot Church, a couple of sharp turns brings us on the left to Buscot Lock. A couple of miles lower down is the little village of Eaton Hastings; Faringdon Hill, with its large clump of Scotch firs being a conspicuous object on the



THE THAMES

right bank and two miles further again is Radcot Bridge, distant from Oxford twenty-six miles. The next point is Old Man's Bridge, twenty-five miles from Oxford, and after about two miles of rather monotonous travelling, we come sharp on the left to Rushy Lock and a mile further to Tadpole Bridge, twenty-two miles from Oxford, with the Trout Inn, a convenient place for luncheon. About a couple of miles from Tadpole is Ten Foot Bridge and a mile or so lower down are the village and ferry of Duxford. A mile or so below this there is considerable shoaling and half a mile further an island with Poplars, where the Berks bank should be followed. After making two or three bends, beyond this point, there is a prettily wooded bank on the right, and a short mile of capital water for rowing brings us to New Bridge from Oxford fifteen miles, which, notwithstanding its name, is of great antiquity. Another mile brings us to the bridge where was formerly Langley's or Ridge's Weir. About four and a half miles from New Bridge is Bablock Hithe Ferry, ten and a half miles from Oxford, below which there is a fine stream, the scenery becoming very good, with fine bold hills and the Earl of Abingdon's woods at Wytham. After passing Skinner's Weir, the river twists and turns about a good deal until we reach Pinkhill Lock, eight and a half miles from Oxford, with a fall of about three feet. Round a good many corners and rather more than a mile off is Eynsham Bridge. Good reaches for about three miles bring us to King's Weir, sharp on the right, the stream to the left going to the Duke's Lock, the junction with the Oxford Canal. Passing presently under Godstow Bridge, are seen the ruins of Godstow Nunnery and Godstow Lock, three and a half miles from Oxford, on leaving which a pretty

view of the city is obtained. Three hundred yards further is Osney Lock. A little further is Folly Bridge, Oxford.

The towing-path after leaving Folly Bridge, Oxford, follows the right bank. On the left are the boat-rafts and the barges of the various colleges moored off Christ Church Meadows, where in the winter, after a flood, there is sometimes capital skating. About three-quarters of a mile from Folly Bridge are the long bridges across a backwater, which reënters the Thames—in this part of its course sometimes called the Isis—half a mile below Iffley. Half a mile below Iffley is the iron bridge of the Great Western Railway, from beneath which is a very pretty view of the spires of Oxford, particularly of the tower of Magdalen College. Along the left bank for some distance is one of those grand pieces of woodland scenery for which the Thames is so renowned. The woods extend as far as the iron railway bridge, after passing which the spire of Abingdon church appears above the trees to the right. Rather more than a mile below the cottages at Nuneham is the fall on the left where the old and present channels divide. Half a mile further and sharp to the left is Abingdon Lock, average fall six feet, from London 104½ miles, from Oxford seven and one-quarter miles. The river here runs through flat meadows. The view of Abingdon, with the spire of St. Helen's, is very pretty. Culham Lock, a good stone lock with an average fall of seven feet; Clifton Lock with an average fall of three feet; and Days Lock with an average fall of four feet six inches, are passed. A little over a mile on the left bank is Dorchester with its famous abbey church. The footpath crosses the Roman remains known as The Dyke Hills. On Sinodun Hill on the right is a fine Roman camp. Below the ferry on the right is Bensington

Lock, with an average fall of six feet six inches. The country from here to Wallingford is charmingly wooded.

Wallingford, from London ninety and three-quarter miles, from Oxford twenty and three-quarter miles is a very convenient place to break the journey, and the breakfasts and ale at the "Lamb" deserve particular attention. From Cleeve Lock there is a lovely view of the hills and woods above Streatley. Goring Lock is a favourite place for campers. Further on to the right are Basildon church and village and further still, opposite the beech woods and on the brow of the hill to the right is Basildon Park. At this point a fine stretch of water runs almost in a straight line for a considerable distance; the banks on either side are well wooded, and the view up or down is one of the most sylvan on the river. Just before making the bend before Pangbourne Reach is Coombe Lodge with its beautiful park, and at the end of the chalk ridge on the right is Pangbourne, from London eighty and three-quarter miles, from Oxford thirty and three-quarter miles.

Below Whitchurch Lock a wooden bridge connects Whitchurch and Pangbourne, and at its foot is the pretty house known as Thames Bank. After leaving Mapledurham Lock on the right, there is a charming view. Caversham Bridge, the nearest point for Reading, and Caversham Lock, Sonning Lock and Sonning Shiplake Lock and Wargrave and Marsh Lock bring us distant from London sixty-six miles.

A mile from Marsh Lock we come to Henley. A handsome bridge spans the river here; the tow-path crosses to the right bank. A short half mile below greenlands on the right is Hambleden Lock. At the next bend in the river the red brick house on the right is Culham Court,

and here the view up the river to the poplars and wooded hills above Hambleden is very charming. Passing Culham keep to the left bank, leaving the island known as Magpie Island on the right. Half a mile farther, on the top of the high wooded hill on the left, is a farmhouse on a site where has been a farm since Domesday Book was compiled. Two miles from the lock is Medmenham Abbey, with the Abbey Hotel, a well-known and convenient place for water-parties.

On the right bank at Hurley Lock is the village of Hurley with Lady Place, so well known in connection with Lord Lovelace in the revolution of 1688. About half a mile further is Marlow, with its graceful suspension bridge and ugly church. Three hundred yards below the bridge is Marlow Lock. Another three-quarters of a mile brings us to Cookham. Cookham Lock is the most beautifully situated on the river, just under the woods of Hedsor and Cliveden. The scenery down the next reach and past the islands is exceedingly beautiful and is generally considered the finest on the river. Not quite two and a half miles from Cookham Lock is Boulter's Lock, from London fifty miles.

Below Maidenhead Bridge is the Great Western Railway bridge, supposed to be the largest brick bridge in the world. A mile from Maidenhead is the pleasant village of Bray. Rather more than a quarter of a mile on the left is Bray Lock. Half a mile further is Monkey Island, and here for a little distance there is a good stream. Two miles and a half from Bray Lock, on the right bank, is Surly Hall, an inn well known to Etonians. About another half mile brings us to Boveney Lock on the left. On the right is Windsor racecourse, and three-quarters

of a mile down is Athens, the bathing-place of the senior Eton boys. The Great Western Railway bridge and the Brocas clump on the left are next passed, and we arrive at Windsor on the right bank and Eton on the left. The river is here crossed by an iron and stone bridge of three arches. After passing through Windsor bridge, the right bank on which is the tow-path should be kept. The rapid and dangerous stream to the left runs to the weir and the neighbourhood of the Cobbler, as the long projection from the island is called, is undesirable when there is much water in the river. Not half a mile below Windsor bridge is Romney Lock. After passing through Romney Lock, beautiful views of Eton College, the playing-fields and Poet's walk are obtained on the left, and on the right are Windsor Castle and the Home Park. Farther down is the Victoria Bridge, one of two which cross the river at each extremity of the park, and about a mile and a half from Romney Lock is Datchet on the left bank. After the second of the royal bridges, the Albert, is passed, the right bank must be kept, and a long narrow cut crossed half way by a wooden bridge leads to Old Windsor Lock. Three-quarters of a mile from the lock, in pretty scenery, is the well-known "Bells of Ousely" tavern. Half a mile farther down Magna Charta Island, with its cottage is on the left. Runnymead is on the right bank, which should be followed to Bell Weir Lock.

The Colne enters the Thames on the left between Bell Weir Lock and Staines. Two or three hundred yards farther are Staines Bridge and the town of Staines. After Penton Hook Lock about one and three-quarter miles from Staines is Laleham and the ferry. Still keeping to the left bank, we next come to Chertsey Lock. Hence the river winds

very much between flat banks to Shepperton Lock on the left. Here the Wey enters the Thames. Three-quarters of a mile below Halliford are Coway or Causeway Stakes, and immediately afterwards comes Walton Bridge which consists of four arches. On the right below is Mount Felix and the village of Walton. Half a mile on the left is a tumbling bay, whose neighbourhood will best be avoided, and half a mile below this on the right, is the cut leading to Sunbury Lock. About one and a half miles below the lock is an island, either side of which may be taken. On the right are Molesey Hurst and race-course and on the left, Hampton. Here is a ferry, and on the left bank below the church Garrick's Villa. Below Molesey Lock is Hampton Court Bridge, an ugly iron erection, Hampton Court being on the left and East Molesey, with the railway station, on the right. Nearly a mile below the bridge, on the right, is Thames Ditton. Passing Messenger's Island we come to Surbiton, and nearly a mile lower down to Kingston Bridge. The next point is Teddington Lock. On the left Teddington and an almost uninterrupted line of villas extends along the bank as far as Twickenham. There is an iron foot bridge from Teddington to the lock. About a mile from the lock is Eel Pie Island, opposite which are Petersham, and Ham House, the seat of the Earl of Dysart, almost hidden among the trees. On the left is Orleans House, and down the river rises Richmond Hill, crowned with the famous "Star and Garter." Making the bend just below the next island is, on the right bank, the ivy-clad residence of the Duke of Buccleuch. Not quite three miles from Teddington Lock is Richmond Bridge. A short distance below the Bridge is Richmond Lock, ninety-six and a half miles

from Oxford and fifteen and a half miles from London. The trip is generally concluded here, the banks of the river below this point presenting little or nothing to attract the visitor.

Passing Isleworth, Sion House, the seat of the Duke of Northumberland, Brentford, Kew with its Palace, Church and Observatory, the famous Kew Gardens, Chiswick and Chiswick Eyot (famous for its swans), we arrive at Hammersmith with its long bridge, opened in June, 1887, and are practically in London. From here we note Fulham Episcopal Palace, the summer home of the Bishops of London who have been lords of the manor from an early date, Putney, Hurlingham House, Wandesworth, Battersea Park, Chelsea and its iron bridge, Vauxhall, Lambeth Palace, the London residence of the Archbishop of Canterbury, Westminster Bridge, the Houses of Parliament and Westminster Abbey, Charing Cross Railway Bridge, the Victoria Embankment with Cleopatra's Needle, Waterloo Bridge, Somerset House, The Temple Gardens, Blackfriar's Bridge, St. Paul's Cathedral, Southwark Bridge, St. Saviour's and come to London Bridge, opened by King William IV. and Queen Adelaide in 1831. Here old London Bridge stood for more than six hundred years, a quaint structure adorned "with sumptuous buildings and statelie and beautiful houses on either syde"; and at the gatehouse of the bridge the heads of traitors were exposed. On leaving London Bridge we enter the Pool, which extends to Limehouse and is divided into the Upper and Lower Pool by an imaginary line drawn across the Thames at Wapping. The Pool is always crowded with steamers, sailing-vessels and barges. On the left bank stands The Monument, commemorating the Great Fire of 1666, which began in the house of the

King's baker in Pudding Lane. Not far from it is Billingsgate Fish Market, then follows the Custom House and the massive, solemn and impressive Tower. Tower Bridge, the foundation stone for which was laid in 1886, is passed, below which begin the great docks. Wapping Old Stairs, made classic by Dibdin's song, and Shadwell are passed before we leave the Pool and enter Limehouse Reach.

The Thames now bends to the south and we pass the great West India docks, the wall of which includes an area of nearly three hundred acres. We pass Greenwich, famous for its Hospital (the old Palace), Observatory and Park, after which the river takes a northerly course. Woolwich with its Arsenal and Barracks, Shooter's Hill, from which a fine view of London is obtained and now the river turns south, for the Thames is a river of many windings. At length we reach Tilbury and its Docks and Gravesend, and here we are at the mouth of the river. The Midway enters the Thames between the Isle of Grain and the Isle of Sheppey and is now a muddy river with nothing beautiful on either bank. Half way across the estuary, and fifty miles from London Bridge, is the Nore Lightship, established in 1730.

THE CONNECTICUT

TIMOTHY DWIGHT

CONNECTICUT RIVER rises in New Hampshire. Its fountains are between 44°, 50′ and 45° north latitude, and nearly in 71° west longitude from London; about twenty-five miles eastward from its channel, where in the same latitude it divides Stuart[1] and Colebrook from Canaan in Vermont. These fountains, which are at the distance of two or three miles from each other, flow in two small converging rivulets; one of which empties its waters into a pond, covering about six acres, whence it proceeds to a lake, which from its resemblance to the numerical figure 8, I shall name Double Lake. The other rivulet, also, unites with the same lake; which is two miles long and half a mile wide; and covers between five and six hundred acres. Hence the waters flow in a single channel, about seven miles, into another lake, which from its figure I shall call Heart Lake;[2] about six miles long and three broad, and covering between nine and ten thousand acres. From Heart Lake with a material addition to its current, the river runs north-westward for four miles and a half; and is a continual rapid through the whole distance. In one part of this reach it descends fifty feet in a course of three hundred. Below the rapid, it receives from the northward a stream called Perry's Brook; and a little further down,

[1] Now Stewartstown.

[2] Now Connecticut Lake.

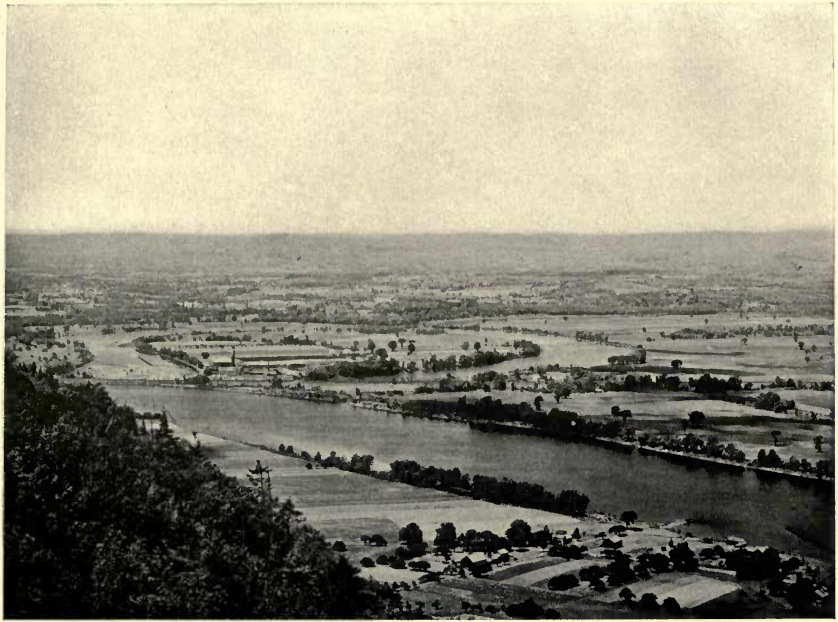
another, called Cedar Brook. About two miles further on it receives another from the south, called Dear Water Brook; and, about a mile further, a fourth from the north called Back Brook, conveying into it the waters of a small lake, called Back Lake. That portion of the Connecticut, which is between Perry's Brook and Back Brook, four miles in length, is named the *Dead Water:* the ground on either side being low and level; and the stream winding, sluggish and deep. After receiving the waters of Back Brook, it runs for one mile over a succession of rocks, termed the Great Falls; in one part of which it descends, perpendicularly, over a ledge twelve feet.

Before its junction with Indian River, the Connecticut runs about the same distance with that stream, and discharges more than twice its quantity of water into the common channel. Hall's River is sensibly less than Indian River.

The course of the Connecticut to Perry's brook, between twenty-five and thirty miles is north-westward; thence to the forty-fifth degree of north latitude west-south-west; thence to the city of Hartford south-south-west, and thence to the Sound about south-east.

The length of this river is about four hundred and ten miles. From Griswold's point, in Lyme, to the forty-fifth degree of north latitude, the distance measured by its waters, is about three hundred and seventy-four; and thence to the head-waters from thirty-five to forty. Its meanders throughout a great part of its course are almost perpetual.

The number of its tributary streams is very great. The waters which form the Connecticut are remarkably pure and light, such as we commonly term the best water for washing. The tributary streams, almost without an excep-



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THE CONNECTICUT

tion, issue from hills formed of stone, covered with a gravelly soil; and roll over a gravelly and stony bed through their whole progress. The waters of the parent stream are, therefore, everywhere pure, potable, perfectly salubrious, and inferior to none in the world for the use of seamen in long voyages.

As a navigable water, this river is inferior to many others of a smaller size. This is owing to two causes; falls and shallows. The falls are the following: Little Falls, Great, Indian, Judd's, Fifteen-mile, Lebanon, Waterqueechy, Bellow's, Miller's, South Hadley, Enfield.

The Fifteen-mile falls, Waterqueechy, and Enfield, and the greatest part of the distance attributed to the others, are mere rapids; and there are also other small rapids, which are of no consequence.

The Valley of the Connecticut is a tract of land, extending from the Sound to Hereford Mountain; five miles beyond the forty-fifth degree of latitude. In the largest sense it includes the tract which is bounded by the Lyme range on the east, and by a confused cluster of hills, commencing at the Sound, and terminating below Middletown, then by the Middletown range, then by that of Mount Tom, and then by that of the Green Mountains, on the west. In this sense it is of very different breadths, from five miles perhaps to forty-five; and its surface is composed of an indefinite succession of hills, valleys and plains. But there is another sense in which the phrase is used with more obvious propriety and in which it denotes that portion of this vast extent, which appears as a valley to the eye, moving in the road along its course from its mouth to the great bend in the northern part of the township of Stuart.

The Valley of the Connecticut extends through almost

four degrees of latitude, and is bounded on the north by Hereford Mountain; a magnificent eminence, ascending five miles beyond the line. The superior limit of this mountain is an arch more gracefully formed than that of any other within my remembrance. Its elevation is about 2,000 feet above the neighbouring country.

The Intervals on this Valley begin at Hall's River, about twelve or fourteen miles from its mouth. The word, Interval is used by me in a sense altogether different from that which it has in an English Dictionary. Doctor Belknap spells it Intervale, and confesses his want of authority for the use of the word. There is in truth no such word; unless we are to look for its existence in vulgar and mistaken pronunciation. Originally, when applied to this very subject, it seems to have meant nothing more than that extent of ground which lay between the original bank of the river and the river itself.

This extent was composed of land, peculiar in its form and qualities. The English, so far as I know, have no appropriate name for grounds of this class. Whether such lands exist on the rivers of Great Britain, I am ignorant, having never seen any definite account of them, or allusion to them in any book descriptive of the surface of that country. From the accounts of Sir John Sinclair's *Statistical History of Scotland* of the lands on some rivers in that country, I should suppose that a part of them might be Intervals, yet they are distinguished by no appropriate name. On some rivers in this country there are none; and on others very few. Wherever they exist, they are objects of peculiar attention to farmers and subjects of much customary conversation. That a name should be given to them, therefore, is a thing of course. Interval is the name

which they have accidentally obtained in this country; and a New Englander relishes it more than *flats* or *bottoms*.

This word, in its appropriate meaning denotes lands formed by a long continued and gradual alluvion of a river.

Beauty of landscape is an eminent characteristic of this Valley. From Hereford Mountain to Saybrook, it is almost a continued succession of delightful scenery. No other tract within my knowledge, and from the extensive information which I have received, I am persuaded that no other tract within the United States of the same extent can be compared to it, with respect to those objects which arrest the eye of the painter and the poet. There are indeed dull, uninteresting spots in considerable numbers. These, however, are little more than the discords which are generally regarded as necessary to perfect the harmony. The beauty and the grandeur are here more varied than elsewhere. They return oftener; they are longer continued; they are finished by a hand operating in a superior manner. A gentleman[1] of great respectability, who had travelled in England, France and Spain, informed me, that the prospects along the Connecticut excelled those on the beautiful rivers in these three countries in two great particulars—the Forests and the Mountains (he might, I believe, have added the Intervals also); and fell short of them in nothing but population and the productions of art. It is hardly necessary to observe that both these are advancing with a rapid step (perhaps sufficiently rapid), towards a strong resemblance to European improvement.

Nor are these grounds less distinguished by their beauty. The form of most of them is elegant. A river, passing through them, becomes almost of course winding. As the

[1] The late Chief Justice Ellsworth.

earth, of which they are composed, is of uniform texture, the impressions made by the stream upon the border, are also nearly uniform. Hence this border is almost universally a handsome arch with a margin entirely neat, and very commonly ornamented with a fine fringe of shrubs and trees. Nor is the surface of these grounds less pleasing. The terraced form and the undulations are both eminently handsome. In a country abounding in hills, plains moderate in their extent, like these, are always agreeable. Their universal fertility makes a cheerful impression on every eye. A great part of them is formed into meadows. Meadows are here more profitable, and everywhere more beautiful, than lands devoted to any other culture. Here they are extended from five to five hundred acres, and are everywhere covered with a verdure peculiarly rich and varied. The vast fields, also, which are not in meadow, exhibit all the productions of the climate, interspersed in parallelograms, divided only by mathematical lines, and mingled in a charming confusion. In many places, large and thrifty orchards, and everywhere forest trees standing singly, of great height and graceful figures, diversify the landscape.

The first object, however, in the whole landscape is undoubtedly the Connecticut itself. This stream may, perhaps, with as much propriety as any in the world be named the Beautiful River. From Stuart to the Sound, it uniformly sustains this character. The purity, salubrity and sweetness of its waters; the frequency and elegance of its meanders; its absolute freedom from all aquatic vegetables; the uncommon and universal beauty of its banks; here a smooth and winding beach; there covered with rich verdure; now fringed with bushes; now crowned with lofty trees; and now formed by the intruding hill, the rude bluff and

the shaggy mountain; are objects which no traveller can thoroughly describe and no reader adequately imagine. When to these are added the numerous towns, villages and hamlets, almost everywhere exhibiting marks of prosperity and improvement; the rare appearance of decline; the numerous churches lifting their spires in frequent succession; the neat schoolhouses, everywhere occupied; and the mills busied on such a multitude of streams; it may be safely asserted that a pleasanter journey will rarely be found than that which is made in the Connecticut Valley.

MOSEL

F. WARRE CORNISH

SO we embarked under a bright evening sky, and the smooth stream took us swiftly down. It was a beautiful moment; the evening deepened over the green water and the red rocks, till dusk fell, and we ran the boat aground, hiding the oars in a willow-bed, and tramped with our luggage into Ruwer, the neighbouring village, having been assured that wherever we stopped we should find good lodging. And so it proved; not a village which failed to supply good food, decently cooked, excellent wine and golden beer, clean beds, moderate charges, and, best of all, willing and cheerful hospitality, such as one finds in Tyrol and the Bavarian highlands. There was not a dull reach from Trier to Coblenz. The scenery is not so impressive as that of the Danube or the famous windings of the Rhine.

But the hills of the Mosel Valley are beautiful in form and varied with rocks red as those of Devonshire, or grey slate in slabs and spires, or dark volcanic, like the Eifel. Everywhere there are beautiful woods, valleys guarded by ancient castles, and smiling upland meadows far away among the hills.

As we embarked on the Mosel, let us praise the water itself, to be in company with which was joy enough; in colour green, neither like emerald nor chrysoprase, nor like the crystal of the rushing Traun, or of the deep basin, the home of the soaring grayling, where the river leaps over

the Traun fall. Nor like the water that comes down at Locarno or Verallo; but a deeper, statelier colour, lighter than the Kyle between Mull and Argyll, darker than the Thames at Cookham when at its best after a dry July. In all the shallows wave long tresses of Undine's hair, and the surface of the water is broken by little ruffing eddies into the loveliest water-pattern. Perhaps other rivers are like this; I do not know them. It seemed to me a peculiar and native charm of this river, never sullen, never boisterous, the lady of German rivers. *Smooth-sliding* is the proper epithet. I wish my reed were vocal to praise her aright. She has her own poet—Ausonius; but his poem is rather a catalogue than a hymn of praise, and he takes her for a river, not a goddess, as she revealed herself to us.

Ruwer, the village where we were to spend the night, was shimmering between sunset and starlight, and had its own light besides, for the military were here, and all the windows ablaze, and Faust and Wagner and their loves had come out of Trier to take the air and drink, noisy but respectable.

The next morning was the 1st of September, a dawn of golden haze telling of hot tramps over stubbles and turnip-fields. We were cool and contented, and did not lust after partridges. We find our boat in the dewy willow-bed and give ourselves to the stream. We have got used to the rustic oars, and it is no exertion to row with the swift current, which here and there breaks into a little rapid and makes the boat dance—on one occasion we shipped nearly half a pint of water. It is no good to describe what was enjoyed and is remembered; but here are the facts, though mere facts tell little. Red sandstone cliffs, alternating with grey slate; broad meadows of Alpine grass freckled with

pink crocus; walnut and apple orchards; sober villages with dark roofs and spires; here and there a ruined castle; high "faraways" of pasture and forest; cavalry and artillery flashing and rumbling as they march to the manœuvres along the riverside roads; slow wagons drawn by fox-coloured cows; on and on we slide, stopping where we like, bathing when we like, till at evening we see a lofty rock at a bend of the river; and a party of ladies in a punt. Boldly we call out to ask if there is a good lodging here, and gaily "*Ja freilich!*" comes back the answer across the river, and we land and put up at a clean and friendly inn. The parents and two hard-featured and hospitable daughters welcome us; the whole family turn out of their rooms and turn us in, and we sup under the stars and the velvet sky in front of the wooded rock, which plunges straight into the river and gives its name, "Echo," to the inn. The stars were very grand that night, and the invocation of Echo unearthly as always; it was impossible not to believe here in *Kuhlebjorn* and wood-spirits.

The next morning (Sedan-day) we were taken down to the bank by father, mother and the two daughters, and find the little brother clearing out the boat. How much willingness and courtesy for so small a payment. We said good-bye to the friendly family, wishing them many guests and good weather for their wine, and dropped down to Mühtheim and Berncastle, famous for its "Doctor," the best wine on the Mosel, though much "Doctor" is sold which did not grow at Berncastle, as there are not vines enough at Zeltinger to furnish half the Zeltinger drunk in England. But the name matters little if the wine is good. At Berncastle or rather at Cues, on the opposite bank, there is a large modern hotel near an iron bridge; but

there is also an ancient castle, and a conventual building founded by Cardinal Cusanus in 1465, no longer occupied by Monks.

I wish I could convey something of the pleasure which the rare beauty of the green water and the continual variety of the landscape gave us; the strong rippling of the stream when the rowers, out of mere idleness, put on a spurt and the steerer enjoys his ease; the still backwaters among the rushes, where the current is guided by groynes into the mid-stream; the sun-smitten cliffs; the soft, green slopes and valleys, where cloud-shadows sleep. The new landscapes came gliding into view with a change at every bend; but all is harmony. We pass pious processions of country people with banners and "Aves," the priest leading them. They seem tired but happy—country people of the humblest kind, unreached by tourists. The trains tinkle to warn people of the crossings, the slow cow-wains creak along the roads, little boys shout injurious remarks to the "*Engeländer*," women kneel by the stream and wash linen, the fish leap in the shallows, the sun shines, and the day goes by. How good the remembrance of the walk over the hills, cutting off a long loop, while two of us took the boat round; for the Mosel bends round more than once almost in a circle, as at Durham and Château Gaillard, and you walk across through grasshopper pastures and steep vineyard paths, through cool dark woods and heathy summits looking far away, through quivering haze, towards Coblenz and Mainz. How good, too, the blazing sun in little Kinsheim, the *Mittagsessen* and reposeful hour under the tulip-tree in the hot shady garden at the back of the inn.

Another great loop to Alf, a little boy and his sister bringing the boat from picturesque Pünderich, their dwell-

ing place. Alf will be remembered, not for itself—for it is a tiresome little watering place, crowded and hot, and noisy with voices of German trippers,—but for our excursion to Elz. We climbed out of the trench in which the river runs, and drove across a happy tableland of orchards; roads bordered with fruit-trees, wide-spreading meadows, cornland and wood—peaceful German country sleeping in afternoon sunshine, mowing and reaping, planting and building, unchanged for a thousand years; then the road descended through shady woods, and, lo! at a turning, "pricked with incredible pinnacles into heaven," with gables, roofs and turrets innumerable, a castle, but, oh, what a castle! Here lived the Sleeping Beauty; hither King Thrushbeard brought his bride; such a building Hop-o-my-Thumb descried from his tree-top. Up in that turret was the spinning-wheel; under that window twanged Blondel's zither; from that gateway Sintram and the trusty Rolf spurred forward, and St. Hubert set out to chase the holy stag; and knights and ladies, with falcon on wrist or with cross bow and spear, went out a-hunting, or rode "a stately train in pomp of gold and jewels, velvet and vair" to joust at Worms-upon-the-Rhine. Henceforward I have seen the German Zauberland; henceforward nothing can add to or take from this impression. My dream is come true.

The castle stands on an isolated rock with deep wooded ravines on all sides, to which no stranger may go. The saucy castle defied all its neighbours and vexed the lands of my lord archbishop the Elector of Trier, who, to curb its pride, built another castle over against it and called it "Trutz-Elz" (Who care for Elz?). I don't know the rest of the story, but there stands Elz as good as ever, possessed by the lords of that ilk, and Trutz-Elz is a ruin.

Our time is running out. We left Alf in a dawning of golden mist, and rowed merrily down to Ediger, with its picturesque church, all flying buttresses, pinnacles and crockets, like a church in a Dürer background, to Cochem, with its restored castle and a sense of modern prosperity which is better for the town than for the contemplative traveller. Another clean little hostelry at Treis, with good wine and a cheery landlord. There is a river at Treis and a possibility of small trout if we take great trouble; but we don't; it is too hot to take trouble; there is no water in the stream, and the fish are asleep. The river now makes up its devious mind to go straight for Coblenz in long reaches, with groynes on either bank. It comes on to rain; we bump a rock and dance along a rapid. Then come commercial buildings with chimneys, reminding us that we live in the iron age. The stream widens, the rain pours down, the Roman bridge comes in sight. Coblenz *finis chartæque viæque.*

May we go there again.

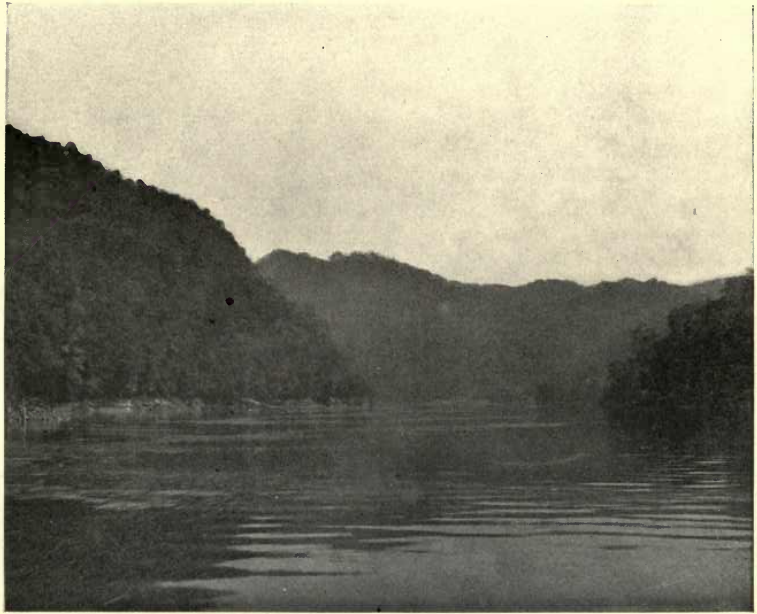
THE IRRAWADDY

EMILY A. RICHINGS

THE mighty Irrawaddy, which traverses the entire length of Burma, impresses itself on popular imagination as the living soul of the land, moulded and coloured through countless ages by the influence of the majestic river. If Egypt be the gift of the Nile, Burma is scarcely less the gift of the Irrawaddy, deepened by myriad tributary streams, and flowing in ever-widening volume from forest cradle to fan-shaped Delta. The source of the historic stream is still veiled in mystery, as it winds through impenetrable jungle and untrodden mountains until it becomes navigable for the last thousand miles to the sea. Manifold traditions encompass the great river with that atmosphere of glamour which invests Burma with romantic charm.

The song of the river breathes of nomadic hordes and contending races, of old-world kings, mythical warriors, and legendary saints, until the dominant Burmese united in the Irrawaddy Valley, and the tribes wandering down the lateral tributaries were absorbed or subjected by the ruling power.

The modern voyager generally takes the downward course of the river, journeying by train to Katha, through the palm-studded plains and dense forests skirting the blue hills which divide Burma from the Shan States on the borders of Siam. Under the hovering mists of dawn giant



THE IRRAWADDY

teak and feathery bamboo, looped together with coils of all-embracing creeper, make a rich tangle of matted foliage. Bhamo, the head of navigation as regards the great steamers of the Irrawaddy Flotilla, and the frontier town on the borders of China, lies along the yellow sand-bank of the foreshore. The Siamese name, signifying "City of Pans," is derived from the local manufacture of iron and earthenware jars, cauldrons, and pitchers, dating from primitive times. Bhamo, formerly a walled Shan town, fiercely contested both by China and Burma, was captured four times by the Chinese, easily reinforced from their own frontier only thirty miles away. The town of 12,000 inhabitants, protected by an English battery and a police force of Indians and Kachins, is still the meeting-place of converging races. Chinese, Moslems, and Hindus possess their own quarters in the squalid city, where the astute Celestials retain the largest share of local trade, importing cotton and salt, or exporting honey, hides, ochre and chestnuts, with thousands of cooking pans. Blue robes, sun-hats and pig-tails, grey roofs with upcurved eaves, and tinselled banners waving round the tarnished red of a Joss-house bristling with weird figures, transport our thoughts to the Middle Kingdom, reached by the sandy track beyond the ruined walls. Tom-toms beat in the Hindu quarter, and dark figures glide past with jingling anklets and filigree nose-rings, or lie supine on rickety *charpoys* in the open street. A muezzin chants from the minaret of a tiny mosque, and the bearded sons of Islam spread their prayer-carpets in the dust, prostrating themselves in obedience to the voice which summons them to prayer on these alien shores. Beneath the banyan trees of an arcaded court a marble Buddha dreams amid the shadows, and kneeling Shan women offer

their morning orisons at the crumbling altar. Tall black head-dresses and dark-blue skirts, embroidered with many-coloured wools, mark a distinct racial type. Silver cylinders weigh down dusky ears, silver hoops encircle sunburned necks, and the glittering chain of a silver needle-case hung from the waist-belt of an almond-eyed girl denotes her rank as a Shan lady. The intelligent faces are bright and animated, but every smile discloses teeth blackened with betel-nut. The men of the party sip tea and smoke their silver pipes under the green boughs, leaving the devotional exercises to their womankind. A Burman in rose-coloured turban and plaid kilt lolls upon a stone parapet, and Kachin women, with mops of rough hair and furtive faces washed in grease, pass the gateway with loads of elephant-grass on their backs, bringing a barbaric element into the scene.

Pagoda, Joss-house, and Buddhist temple stand in friendly proximity, and no war of sect or creed disturbs the harmony of life under the tolerant British rule; but the Buddhism of the Shan and the Nature-worship of the Kachin show many points of contact.

The arrival of the Irrawaddy steamer, towing cargo "flats" in its wake, is the event of the week, and rustic barges thread the narrow defile above Bhamo, bringing their contingent of produce and passengers from distant villages on the confines of civilization. One of the great "flats" is a floating market, where Burman and Kachin, Shan and Chin, display their varied merchandise to the motley throng of customers. Gaudy silks and cottons, rude pottery and quaint lacquer-work, barbaric toys and trinkets, fruit, vegetables, and sweetmeats, with household utensils of every kind, fill the dusky space of the covered deck with brilliant

colour. Indolent Burmese doze and smoke on gaily-striped quilts, while their wives chaffer and barter with business-like aplomb; for the Burmese woman is the breadwinner of the family, and retains most of the commercial transactions of the country in her capable hands. A pretty girl in white jacket and apple-green skirt, with a pink *pawa* floating on her shoulders, sits on a pile of yellow cushions and smokes her big cheroot of chopped wood and tobacco in meditative calm. Diamonds glitter in her ears, and ruby studs fasten her muslin bodice, for she goes as a bride to some distant riverside town, and carries her "dot" on her back. Strings of onions and scarlet chillies hang from the rafters above bales of fur from China. Children flit up and down, like many-coloured butterflies, in quaint costumes brightened with pink scarfs and tiny turban, miniature replicas of their elders, for no special garb of childhood exists in Burma, and the general effect suggests an assemblage of gaily-dressed dolls. Shan women in tall black turbans stand round a harper as he twangs the silken strings of a black and gold lyre with sounding-board of varnished deerskin. The weird fractional tones of native music, discordant to European ears, harmonize with the semi-barbaric environment as the musician chants some heroic legend of the mythical past. Presently he approaches a mattress of white and scarlet, occupied by a woman whose brown Mongolian face is blanched to the pallor of age-worn marble by chronic pain, and sings a wild incantation over the sufferer, who by the advice of a fortune-teller undertakes the weary journey to pray for healing at the Golden Pagoda of Rangoon. The charm apparently succeeds, for the tired eyes close, and as the song dies off in a whispering cadence a peaceful slumber smoothes the lines of pain

in the troubled face. Family parties sit round iron tea-kettles, and girls bring bowls of steaming rice from the rude galley where native passengers cook their food.

Past green islets in sandy reaches, hemmed in by bold cliffs conveying vague suggestions of Nile scenery, the great steamer pursues her way. Above dark clumps of banyan and tamarind, the golden spires of Buddhist monasteries, or the shining *tee* of village pagodas, invest the changing landscape with the unique individuality of Burma, distinct in character from the Indian Empire, though politically comprised within it. A magical peace and purity, suggesting a world fresh from the Creator's hand, transfigures hill and dale with ineffable lucidity of atmosphere and delicacy of colour. The solemnity of the deep gorges piercing the profound gloom of virgin forest supplies a contrasting note of haunting mystery, the loneliness of these upper reaches merely accentuated by occasional signs of human life and activity in the vast solitudes through which the river flows. As the steamer swings round a projecting rock, the grotesque forms of two colossal leographs—the hybrid lion and gryphon of Burmese mythology—rear their white bulk against a green tuft of towering palms at the gate of a Buddhist temple flanking the grey cone of a tall pagoda. Yellow-robed monks lean on the balustrade of an island monastery hidden like a bird's nest amid the thick foliage, and beautiful even in decay. The broad-eaved roofs, with their carved and gilded pinnacles, are miracles of art, for the historic foundation was formerly renowned throughout Upper Burma, and on festivals even the dog-fish, for which this reach of water is famous, were decorated with strips of gold-leaf, and tamed to come at the call of the monks. Farther on a yellow procession descends a long flight of rocky steps cut in the

face of a steep cliff crowned by a monastic pile bristling with gilt finials and vermilion spires. At the foot of the mountain stairway a huge funeral pyre of forest trees attracts groups of villagers, who land from a fleet of carved and decorated boats in festal array, for a monk is to be cremated after the invariable custom of Buddhist orders, and the ceremony is observed as a general holiday. The light-hearted Burmese only extract pleasure from the gruesome spectacle, for what matters this little incident in the manifold cycles of progressive existence reserved for the reincarnating soul?

Stockaded villages line the foreshore, and hilltops glitter with the golden *tee* of clustering shrines. The sublime defiles of the glorious river, with their frowning cliffs and toppling crags, widen into the dreamy calm of land-locked reaches, where pagodas multiply on every point of vantage, in monumental testimony to the zeal and devotion of the Burmese past. The nomadic races of Burma impressed their character on the multitude of ruined cities and deserted capitals buried under the veil of verdure in the tropical jungle, or covering hill and plain with decaying splendour. In a shadowy channel beneath overhanging rocks the wrecked yacht of the luckless King Theebaw lies overturned, the lapsing water rippling against red funnel and gilded poop. No effort is made to raise the melancholy derelict, a fitting emblem of past sovereignty. At the sacred heights of Sagaing, transformed by the white and golden spires of graceful pagodas into ideal loveliness, a *pothoodaw*, or "man of both worlds," in semi-monastic garb with yellow parasol, awaits the arrival of the steamer.

The gentle humility of this old *pothoodaw* contrasts favourably with the aggressive importance of a village

"head-man," or local magistrate, who pushes him aside, and struts along the narrow wharf in tartan silk and spotless muslin, an obsequious attendant carrying his master's red umbrella and silver betel-box. Yellow-robed brethren dismount from creaking bullock-wagons lined with hay, and await the coming steamer to bear them to the cremation ceremony up-stream. Palm-leaf fans are raised to the brown faces, but two youthful novices satisfy their curiosity concerning European womankind by peeping through the interstices of the sun-dried fronds. Other waiting passengers set out the huge pieces of a clumsy chessboard on a pile of flour bags; for time is no account on these dreamy shores, and two hours must elapse before the Bhamo boat swings in sight.

Evening turns the noble river into a sheet of flaming gold; pink clouds lie like scattered rose-leaves in the path of the sinking sun, and through the deepening veil of twilight the red fires twinkling outside reed-thatched huts of tiny villages supply local colour to riverside life. Jungle-grown Ava and ruined Amapura lie on the water's brink; the Pagan, grandest of ancient capitals, covers a wide plain with the imposing architecture of a thousand pagodas, the colossal Ananda Dagon soaring like a huge cathedral above multitudinous domes and spires, gold and crimson, white and grey, of the deserted metropolis; for the tide of life swept away from royal Pagan seven hundred years ago. The white tents of the Government elephant camp cover a stretch of sand above the bathing place of the herd, and the officer in charge gives a fascinating account of his adventurous life; though many perils attend the capture of the three hundred elephants annually required by authority, and in the past year fifteen hunters have fallen victims to the

dangers which beset horse and rider from sharp tusks, trampling feet, falling trees, and tangling creepers in the dark recesses of primeval forest. The typical denizen of Burmese woods possesses a sacred character in popular estimation, and carven elephants loom through the tropical greenery of the shores, supporting tapering pagoda or pillared portico.

The steamer stops before the unfinished temple and colossal Bell of Mingoon, cracked by earthquake, but the second largest in the world, the grandeur of the uncompleted design memorializing the frustrated ambition of a Burmese king who desired to be immortalized as a *Phaya-Taga*, or "Pagoda-Builder," rather than by memories of war and conquest. The spiritual idealism which colours Burmese idiosyncrasy tinges the story of the past, and a modern writer aptly epitomizes one aspect of British rule as "an attempt to turn poetic philosophers into efficient policemen." The charm of this freshwater cruise is enhanced by frequent opportunities of landing at riverside villages, visits to Burmese farms, and strolls through picturesque markets or beneath the palms and tamarinds of country roads leading to mouldering pagodas and forgotten shrines. The inhabitants of these verdant shores are true "children of the river"—the mystic flood which supplies their wants and moulds their character, affording them an "education of contact" with the outside world to soften the crude asperity of mental isolation. The mother plunges her little ones into the eddying waters so early that even in helpless infancy they become amphibious as the croaking frogs in the iris beds at the river's edge. Merry bathing parties display their skill in diving, swimming, or fishing by hand in the crystal depths; and graceful girls, like brown

Naïads, disport themselves beneath the drooping boughs which kiss the ripples of some sheltered creek fit for a fairy's haunt. Parrots call from the trees, and kingfishers flit across the shallows in flashes of emerald light. Luxuriance of vegetation and depth of colour increase with every hour of the downward voyage. Gold mohur and scarlet cotton-tree dazzle the eye as they tower up into the burning blue of the tropical sky, and when the crescent moon sinks beneath the horizon myriads of glittering fireflies suggest, in the beautiful words of an Oriental poet, that "the night is adrift with her stream of stars."

Thabetkein, the busy port of the ruby mines sixty miles away; Yandoon, the malodorous fish-curing town *à la mode de Burma*, which buries the native *hors d' œuvre* to eat it in decay; and beautiful Prome, asleep in the moonlight, are visited in turn, the character of the scenery changing as the wide Delta opens up before the advancing steamer in branching channels, like numerous rivers springing from the parent Irrawaddy. Above us rises the sacred cliff of Guadama, an ancient resort of religious pilgrimage, with countless statues of Buddha carved to inaccessible heights in the living rock. The romance of this watery world turns over a new page on entering the great Bassein Creek, the last stage of the thousand mile course. Elephants feeding in the Jungle, and requiring a whole day for a full meal, crash through the canes regardless of the passing steamer. Peacocks drag their gorgeous trains over pink river-grass and golden sands. Grey egrets preen their soft plumage at the water's edge, and purple hornbills rest on swaying palms. The Delta is alive with craft—rice boats and launches, cargo-boats and steamers. The barbaric *fenaw*, with swelling sails and twenty oars; the curving native

barge, and the graceful Sampans, flitting like brown-winged moths across the stream. Boys, tattooed from head to foot in elaborate patterns, descend side-creek and canal in a rude *dug-out*—the hollow tree which forms the primitive boat—and the green tunnels of foliage show houses of plaited mats, raised on piles and reached by ladders.

Miles of malarious marsh have been reclaimed by Government from the new land ever silting up above the level of the water, and forming the rich rice-fields of this alluvial soil. Riverside towns and villages become more frequent in the lower reaches, and miniature markets of country produce make patches of brilliant colour on the sandy shore. Silken-clad girls, with flower-decked heads, sit beneath pink and green umbrellas, shading piles of golden plantains and pineapples. Bamboo stalls of curious lacquer-ware and trays of clay Buddhas, packets of gold-leaf, and sheaves of incense-sticks appeal to the religious instincts of pilgrims bound for the Golden Pagoda of distant Rangoon. The trade here, as elsewhere, is monopolized by the Burmese women, though many pink-turbaned admirers lie on the sand, smoking, flirting, and singing with the characteristic *dolce ar niente* of masculine life. The long fresh-water cruise floats us from wilderness to the sea, from dreamland to reality. Rice-mills line the shores, ocean-going ships rush towards the forest of masts encircling busy Rangoon, and huge teak-rafts, floated down from distant woods, and sometimes two years on the way, reach their moorings at the Ahlone timber-yards. Elephants, working with military precision, drag the giant trunks by chains from the river's brink and pile them up with mathematical exactness, pushing them with their heads until perfectly level. Even commercial Burma can never be commonplace, for

beyond the motley throngs of the cosmopolitan port, the golden spire of the Shway Dagon, queen of pagodas and goal of the Irrawaddy voyager, idealizes the city clustering round the sacred hill, and created by the central sanctuary of Burma's ancient faith.

THE CLYDE

ROBERT WALKER

GLASGOW and its river have acted and reacted the one upon the other; and the conditions of the city's prosperity and well-being are indissolubly linked with the stream that wanders down from the upland moors of Lanarkshire, tumbling over precipices, meandering through rich orchard grounds, flowing through the busy haunts of men, until it widens into the noble estuary whose waves reflect the peaks of Arran and wash round the rugged steeps of Ailsa Craig. In its course the Clyde runs amid all variety of scenery: moorland, pastoral, woodland. It is, at one time, a shallow stream, humming over a pebbly bed and glittering in the clear sunshine; at another, a foul and sullen mass of water, which the energy of man has turned to good account in his commercial enterprises; and then again, a restless sea, whose white-crested waves break upon the base of Highland hills. Through all its changes, it is dear to the heart of every true Glasgovian. It has been a source of untold wealth to the place of his birth, and most of his happiest memories are connected with the sunny days of leisure he has spent among its lochs and by its sand-edged bays. Glasgow looks upon the Clyde as its own special glory and possession; it is proud of the manner in which the resources of the river have been developed; it is prouder still of its many natural beauties familiar to its citizens from their earliest youth, and an all-powerful at-

traction for the strangers who are led to our shores by the fame of its charms.

Glasgow, although it has many picturesque vistas within its bounds which the ordinary business man, engrossed with the cares of the Exchange, recks nothing of, is not, in itself, a magnet to draw tourists who are simply in search of the picturesque. Edinburgh, among Scottish cities, is, from its own natural beauty, the cynosure of neighbouring and far-away eyes. But Glasgow has the Clyde; and the Clyde, notwithstanding the advantages of the Callander and Oban Railway, is still the pleasantest and most picturesque gate-way and avenue to the West Highlands, where tourists rightly love to congregate.

The practical energy and shrewdness of the Glasgow people early turned to the best advantage the inducements the Frith of Clyde offered to the thousands who were anx-ious for "change of air," and on the outlook for summer resorts. In no district of our island are travelling facilities greater and travelling cheaper than on the Clyde. A wonderful change has taken place since 1812, when the *Comet*, the pioneer boat of a vast fleet of steamers, began to sail between Glasgow, Greenock and Helensburgh. Out of the *Comet*, with its forty-two feet of length, has been evolved what is generally regarded as the premier boat on the river, Mr. MacBrayne's *Columba*, which carries the tourist-flocks from Glasgow to Ardrishaig, whence Mr. MacBrayne's West Highland service is continued through the Crinan Canal.

The *Columba* starts on her journey at seven o'clock in the morning, and as she threads her way down the busy river-channel, the passengers can note the stir and bustle of the wharves, and the evidences in ever-extending docks



THE CLYDE

and quayage, the dredgers and divers, of the indefatigable energy and well-directed skill of the Clyde Trustees, that have turned a shallow meandering stream into a highway for the largest ships that float. Down past the building yards with their clanging hammers and great ships "of iron framed," past what were once the cheerful rural villages of Govan and Partick, now the grimy hives of busy human bees, we steam, leaving behind us the ancient royal burgh of Renfrew and the mouth of the Cart, and come in view of Bowling and the Kilpatrick Hills, among which the patron saint of Ireland is said to have first seen the light. The river here broadens into something like an inland lake and the landscape grows decidedly picturesque. This has been a favourite subject for many Scottish landscape painters—Nasmyth, McCulloch and Bough among the rest. There is a wide stretch of view and the hills near and distant—the first glimpse we have yet had of the beginning of the Highlands—give to it dignity and variety. To the water, studded with craft of all rigs, Dalnottar Hill, Dunglass (where stands the monument to Bell, who introduced steam navigation to the Clyde), Dumbuck Hill and the mass of Dumbarton Castle, are effective background and setting.

At the Tail of the Bank, as the anchorage off Greenock is called, lie a motley crowd of craft: bluff-bowed timber ships, smart Australian clippers, handsome steam vessels of the various lines to America, gaily-painted foreign ships, and in the midst of them, an embodiment of power and authority, rides the guardship, a formidable ironclad.

The steamer at Greenock gathers passengers who have come down from Glasgow by rail, and she takes in more at Gourock, to which the Caledonian Company now run

trains. The old Gourock pier, dear from its fishing associations to the hearts of many generations of Glasgow boys, is now completely altered; a fine quay front has been put up and a handsome station erected. Gourock is one of the oldest of the Clyde watering-places; in its day it was fashionable and thought to be pretty far removed from the giddy world; now it is the resort of the cheap-tripper, and has about its houses something of a second-rate look.

The view of the Frith from both Greenock and Gourock piers is one of great extent and beauty. Opposite, rise in the background range after range of hills, the fantastic ridges of "Argyle's Bowling-green," the Cobbler, the Black Hill of Kilmun, the steeps around Glen Messan, and stealing between these mountain masses are the lochs that are among the chief charms of the district. We have fronting us the entrances to the Gareloch, Loch Long and the Holy Loch, with wooded Roseneath and a white stretch along the shore of cottages and little towns. If we can only secure a day when the waves glitter in the sun and the fleecy clouds fleck the hillsides with alternate lights and shadows, then we need scarcely wish for a fairer scene.

Glasgow men are enthusiastic yachtsmen, and the regattas, the opening cruises and closing cruises of the various clubs are among the chief galas of the westcoast season. Our yachts and their builders—such as Watson and Fife—our skippers and our crews, are famous all the world over. The "white wings" spot the Frith at every turn, and there are few prettier sights than one of these Clyde greyhounds, bursting through the water under a cloud of canvas, with her lee-rail well buried in the sea.

Down the Cowal shore the steamer slips and the long belt of houses and villas that extends from Hunter's Quay to Innellan—once all a lonely shore—is left behind, and we round Toward Point and its lighthouse into Rothsay Bay. This bay, with its environment of hills, is one of the choice bits on the Clyde; the natives all declare it to be finer than the Bay of Naples. Few Rothsay men have been at Naples. When a yacht club holds a regatta here, and the boats cluster at anchor off Rothsay and there are fireworks and illuminations, there is no livelier place than this same bay.

The town itself is beautifully situated, but looks best at a distance. From Barone Hill, at the back, a fine view can be obtained of the panorama of the bay. Rothsay has a long history: it is a royal burgh, and like Renfrew, gives a title to the Prince of Wales. Its chief glory is its ruined castle, over which Norsemen and Scots, Bruces and Baliols, have fought and murdered one another. Old memories and traditions cluster as thick round it as the ivy on its walls.

Leaving Rothsay, we sail into the Kyles of Bute, a narrow passage between the island and the mainland. The wonder is how the steamer can thread its way through the twisting, twining channel, that appears hardly broad enough for the *Columba's* paddle-wheels. Now and again it almost seems as if we should run ashore from the sharpness of the turns. The Kyles are full of quiet beauty. As we look at the little hamlets sheltered under the wooded hills, they seem so out of the world and so remote from the common cares that burden humanity, that we wonder can ordinary sins and sorrows ever disturb there the calm routine of life. The evening hour is the

hour of enchantment, when your boat gently drifts on the slow heaving water. The voices on the shore seem to reach you through a muffled and mysterious air; the opalescent light in the sky is reflected from the waves that lap against the boat; sweet scents are wafted from the hillsides that loom solemn in the gathering darkness; earth's uneasy passions are at rest; for the young, it is a pleasant pause in the hurly-burly; for those who are growing old, it is the time of memories and regrets.

It is the garish light of day now, and with a long gaze at the rugged mist-wreathed peaks of Arran, we round Ardlamont Point and, away to the left, meet the sparkling waters and fresh breezes of Loch Fyne.

Tarbert, our first stoppage after the ferry at Ardlamont, is one of the most noted fishing-villages in the west of Scotland. The entrance to East Loch Tarbert, at which the steamer calls, is exceedingly picturesque, and the district, with its brown sails and its brawny fishermen, is one much beloved of artists. Henry Moore, Colin Hunter, David Murray, among the rest, have turned its beauties to great use. Tarbert is the great centre of the trawl (or seine) net fishing, which in Loch Fyne, after much discussion and many bickerings, has practically superseded in the Loch the old drift-net method. Trawl boats work in pairs with four men and a boy in each boat. Tarbert sends out between eighty and ninety boats, and an exceptionally good night's catch for a pair of trawls is about four or five hundred boxes—each box containing, depending on the size of the herring, from three to five hundred fish. The men are sturdy, fine-looking fellows—and are fishermen proper, as distinguished from the half crofter, half-fishermen of the farther North-west Highlands. The fishing-

fleet going out before sundown is, on a good evening, the sight of Tarbert, the brown sails and the yellow-brown boats glancing in the golden light, as they rush and hum through the clear blue-grey water. Tarbert itself, which lies principally round the inner harbour, is not a particularly inviting place—it smells generally strongly of herrings—but the hills around it are very pleasant to ramble over, and the walk to West Loch Tarbert leads through delightful highland country. There is a ruined castle here, which dominates the harbour and is redolent of memories of Robert the Bruce, the builder of the castle in 1325. The narrow isthmus that separates the East from the West Loch has been more than once surmounted by invading Norsemen and other bold buccaneers, who dragged their boats overland. Sir Walter Scott makes use of this fact in *The Lord of the Isles*.

At Ardrishaig, six miles beyond Tarbert and on the west side of Loch Gilp, the outward run of the *Columba* ends, and passengers for the West Highlands tranship to the *Linnet*, in order to be conveyed through the Crinan Canal.

THE VOLGA

ELISÉE RECLUS

THE rivulet which, at its farthest source, takes the name of Volga, rises not in a highland region, but in the midst of lakes, marshes and low wooded hills, little elevated above the Volkosniky Les ("Volkon Forest") and Valdaï plateau, which may be taken as the true source of the stream. The highest ridges of the Valdaï scarcely rise 220 feet above the plateau, although the chief crest, the Popova Gora, attains an altitude of 1,170 feet. The mean elevation of the land is also sufficient to give it a far more severe aspect than that of the Lovat and Lake Ilmen plains on the north-west. Its peat beds, lakes and fir forests are more suggestive of the neighbourhood of Lake Onega, some 300 miles farther north, and the climate is, in fact, about two degrees colder than in the surrounding districts. Yet the Valdaï flora differs on the whole but little, if at all, from that of the plains stretching towards the great lakes, whence it has been concluded that these heights are of comparatively recent origin. They have no indigenous vegetation, all their species coming from the region released from its icy fetters at the close of the long glacial epoch. The plateau, now furrowed by rain and frost, formed at that time a continuation of the uniform slope of the land, and like it, was covered by the ice-fields from Finland. The fish of its lakes, and even of the Upper Volga itself, do not belong to the Volga basin proper, which



THE VOLGA

the Valdaï streams seem to have only recently joined. To judge from their fauna, the true origin of the Volga should be sought, not in the Valdaï, but in Lake Belo Ozero ("White Lake"), east of Lagoda. The sturgeon and sterlet inhabit the Shesksna, the outlet of this lake, as they do in the middle Volga itself. The region giving birth to the Volga is one of the swampiest in West Russia, resembling a lowland tract rather than a true water-parting. Separated by a simple peat bed from a tributary of the Volkhov, the streamlet rising in the Volgino Verkhovye, and sometimes called the Jordan from its sacred character, flows from a spot now marked by the ruins of a chapel, thence oozing rather than flowing from bog to bog for a distance of about twenty-two miles, when it successively traverses three terraced lakes, whose levels differ only a few inches from the other. The Jukopa, one of the southern affluents, often causes a back flow to Lake Peno near its course, the natural fall being so slight that the impulse of a lateral current suffices to reverse it. After leaving Lake Peno, which is close to Lake Dvinetz, source of the Dvina, the Volga turns eastward to Lake Volgo, where it is already a considerable stream, with a volume of from 3,500 to 3,600 cubic feet per second, according to the seasons. Three miles farther down occurs its first rapid, where a dam has now been constructed, which during the rains converts the upper valley, with its lakes, into one vast reservoir forty-eight miles long, over one mile wide, and containing 6,300,000 cubic feet of water. Boats and rafts are then able to descend from the lake region, and higher up the river becomes regularly navigable. Near this point the Volga is nearly doubled by the Selijarovka from the winding Lake Seligen, whose insular monastery of St.

Nilus is still visited yearly by about 20,000 pilgrims. Here may be said to begin the commercial stream, the Ra, Rhas, or Rhos of the ancients and of the Mordvinians, the Yûl of the Cheremissiams, the Atel or Etil of the Tatars, the Tamar of the Armenians—that is in these languages, the "River"—and in Finnish the Volga, or the "Holy River."

Below the Selijarovka it descends the slopes of the plateau through a series of thirty-five *porogi, or rapids*, which, however, do not stop the navigation, and beyond the last of the series it winds unimpeded through the great Russian lowlands, receiving numerous navigable tributaries, and communicating by canal with the Baltic basin. After passing the populous towns of Tver, Ribinsk, Yaroslav, and Kostroma, it is joined at Niji-Novgorod by the Oka, of nearly equal volume, and historically even more important than the main stream. The Oka, which long served as the frontier between Tartar and Muscovite, rises in the region of the "black lands" and throughout a course of 900 miles waters the most fertile plains of Great Russia, bringing to the Nijni fair the produce of Orol, Kaluga, Tula, Riazan, Tambov, Vladimir, and Moscow. Over 1,440 yards broad, it seems like an arm of the sea at its confluence with the Volga. East of this point the main artery is swollen by other tributaries, which, though as large as the Seine, seem insignificant compared with the mighty Kama, joining it below Kazan from the Urals, and draining an area at least equal in extent to the whole of France. Judging from the direction of its course, the Kama seems to be the main stream, for below the junction the united rivers continue the southerly and south-westerly course of the Kama, whose clear waters flow for some distance before intermingling with the

grey stream of the Volga. Below Simbirsk the tributaries are few and unimportant, and as the rainfall is here also slight, and the evaporation considerable, the mean discharge is probably as great at this place as at the delta.

Below the Kama junction there formerly existed a vast lacustrine basin, which has been gradually filled in by the alluvia of both streams. Here is the natural limit of the peat region, and here begins, on the right bank, that of the steppes. As we proceed southwards the atmosphere becomes less humid, the ground firmer, and below Simbirsk we no longer meet those mossy and wooded quagmires bound together by the tangled roots of trees, resembling matted cordage. But even in the boggy districts those floating forests are slowly disappearing as the land is brought more and more under cultivation.

Below the dried-up Simbirsk Lake the stream is deflected by an impassable limestone barrier eastwards to Samara, where it escapes through a breach and reverses its course along the southern escarpment of the hills, thus forming a long narrow peninsula projecting from the western plateau. Here is the most picturesque scenery on the Volga, which is now skirted by steep wooded cliffs, terminating in pyramids and sharp rocky peaks. Some of the more inaccessible summits are surmounted by the so-called "Stenka" Kurgans, raised in memory of Razin, Chief of the Cossacks and revolted peasantry, who had established themselves in this natural stronghold of the Volga. The hills often rise more than 300 feet above the stream, the Beliy Kluch, southwest of Sizran, attaining an absolute elevation of 1,155 feet or 1,120 feet above the mean level of the Volga.

The region of the delta really begins at the Tzaritzin bend, some 300 miles from the Caspian, for the stream

here branches into countless channels between the beds of the Volga and the Akhtuba, known near the coast as the Bereket. Still the delta, properly so called, is formed only about thirty miles above Astrakhan, by the forking of the Buzan branch from the main bed. Near Astrakhan the Belda and Kûtûm, and, lower down, the Tzarova, Tzagan, Birûl, and other arms, break away, and in the vast alluvial peninsula projecting into the Caspian, and which is at least 110 miles round, there are altogether about two hundred mouths, most of them, however, shifting streams choked with mud. During the spring floods all the delta and lower courses below Tzaritzin form one vast body of moving waters, broken only by a few islands here and there, and after each of these floods new beds are formed, old ones filled up, so that the chart of the delta has to be constantly planned afresh. Two hundred years ago the navigable channel flowed due east from Astrakhan: since then it has shifted continually more to the right and now runs south-south-west.

Without including the shorter windings, the Volga has a total length of 2,230 miles, presenting with its tributaries, about 7,200 miles of navigable waters. From the sources of the Kama to the delta, these waters cross sixteen parallels of latitude, and nine isothermal degrees, so that while the mean annual temperature of the region is at freezing point, it oscillates about 9° in the delta. At Astrakhan the Volga is frozen for about ninety-eight days, and at Kazan for one hundred and fifty-two, while the Kama is ice-bound for six months at the junction of the Chusovaya above Perm. The rainfall of the basin is about sixteen inches, which would give 700,000 cubic feet per second, were all the moisture to be carried off by the bed of the Volga.

But much is absorbed by vegetation in the forests and steppes and in the latter region direct evaporation may dissipate about forty inches during the year in tracts fully exposed to the winds.

Altogether about three-fourths of the rainfall are thus lost *en route*, and preliminary estimates have determined the mean discharge at about 203,000 cubic feet, which is less than two-thirds of that of the Danube, draining an area scarcely half as large as that of the Russian River.

The volume of water discharged by the Volga, which is at least equal to that of all the other influents of the Caspian together, is sufficient to exercise a considerable influence on the level of the sea. Thus the floods of 1867, the heaviest that had occurred for forty years, raised it by more than two feet, the abnormal excess representing 9,600 billions of cubic feet, or about three times the volume of the Lake of Geneva. On the other hand, the delta steadily encroaches on the sea, though at a rate which it is almost impossible to determine. The sedimentary matter held in solution, estimated by Mrczkovski at about the two-thousandth part of the fluid, continues to form islands and sand-banks, while generally raising the bed of the sea round the face of the delta.

The Volga abounds in fish, and the fishing industry supports a large number of hands. Its lower reaches especially form for the whole of Russia a vast reservoir of food, varying with the seasons, and yielding large quantities even in winter by means of holes broken in the ice at certain intervals.

On the islands of the delta are numerous stations where the fish is cut up, and the roe prepared to be converted into fresh and salt caviar. The *bieluga* and the sterlet, both of

the sturgeon family, attain the greatest size, and are the most highly esteemed, but their number seems to have diminished since the appearance of the steamboat in these waters.

THE CONGO

J. HOWARD REED

THE Congo is not only the largest river of the "Dark Continent," but is second only in point of size and volume to the majestic Amazon of South America. It may, therefore, truly be called the largest river of the Old World.

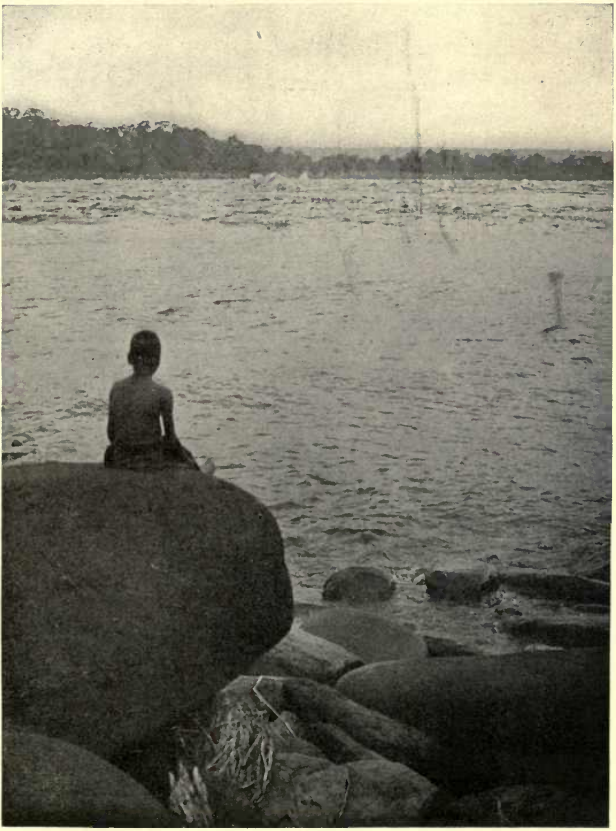
On referring to the latest maps of Africa we find that the most distant source of the Congo is to be found in the River Chambeze, which rises about midway between the south end of Lake Tanganyika and the north end of Lake Nyasa, at a height of 4,750 feet above the level of the sea. Taking a south-westerly course, this stream flows for some 250 miles, until it reaches a huge depression, where it forms a lake, known to the natives by the name Bangweolo. This lake is about 115 miles long by from forty to sixty miles wide, with an area of from 6,000 to 7,000 square miles. At the south-west corner of Bangweolo the river emerges, having a width equal to that of the Thames at London Bridge, and flows northward under the name of Luapula. About 200 miles further to the north Lake Moero, with an area of about 3,500 square miles, is reached. From the north end of this lake the river again issues, flowing away generally in a northward direction.

At a point about 200 miles from Lake Moero the river, known from the lake to this point as the Luwa, is joined

by another stream of much larger size, which rises some 500 miles to the south-west, and is known as the Lualaba. Both these branches of the main river, from their sources to this point, have, of course, had their volumes greatly increased by the innumerable tributary streams flowing into them from the hills and highlands on either side. The two great rivers are now united into one majestic stream, which, bearing the name of Lualaba, continues its flow in a north-north-westerly direction. A little above the point of junction the river receives, on its eastern side, the Lukuga River, which drains the surplus waters of Lake Tanganyika and its tributaries, and augments the mighty volume of the main river.

When we remember that Lake Tanganyika is 400 miles long, from twenty to forty miles broad, has an area of 12,650 square miles, and is fed by tributaries which drain about 70,000 square miles of country, we can form some idea of the enormous body of water which is added to the main stream by the Lukuga River.

About 100 miles to the north of where the Lukuga joins the Lualaba, namely, at the Arab settlement of Nyangwe, the main river is more than a mile wide, with a volume and velocity, according to Stanley, of 230,000 cubit feet of water per second. About 300 miles to the north of Nyangwe are to be found the Stanley Falls, where the river, augmented by the discharged waters of a number of important tributary streams, dashes itself madly down a series of wild rapids and terrible cataracts. These falls extend for a distance of from sixty to seventy miles. From this point the majestic river begins to turn slightly to the westward, and, continuing its course first north-west, then west, and finally south-west—in the form of a gigantic



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THE CONGO

horseshoe—reaches, after a thousand miles' uninterrupted flow, the open expanse of Stanley Pool. Between Stanley Falls and Stanley Pool the volume of the great river is still further increased by the addition of the waters of a great number of large tributary streams, many of which are themselves extensive rivers, draining many thousands of square miles of territory, and navigable for several hundred miles.

Among the great tributaries should be mentioned specially the following; the Aruwimi, noted as the scene of the terrible sufferings of the famous Emin Pasha relief expedition; the Ubangi, or Welle-Makua, which is itself a mighty river, rising away in the "Heart of Africa," and flowing some 1,200 miles before it joins the main stream. On the south bank may be named the Lubilash or Boloko, navigable for 200 miles; the Lulongo, with its branches—the Lopori and Maringa—navigated for 500 miles by the Rev. George Grenfell; the Chuapa, with its branch, the Busera, up which Mr. Grenfell has also steamed some 500 miles. To these may be added the Kwa, which with its tributaries—the Lukenye, the Kasai, the Sankurn, the Kwango, and a number of others—adds enormously to the volume of the Congo, and affords some 1,500 miles of navigable water.

The great river from Stanley Falls to Stanley Pool has an average width of some five miles, but in places it reaches as much as sixteen miles wide, and is split up into separate channels by large islands, with which its bosom is studded. After passing through Stanley Pool the river ceases to be navigable for about 235 miles—except for one comparatively short break of eighty miles—owing to the angry cataracts known as the Livingstone Falls. Below the falls the river

again becomes navigable to the Atlantic Ocean, some 110 miles distant.

The majestic river rushes with such an enormous volume into the open ocean that, for many miles out at sea, its stream can be distinctly traced, and its waters remain fresh, refusing for a long time to become contaminated by the salt of the mighty waste of waters.

The main river and its tributaries have already been explored for at least 11,000 miles. This, of course, gives a length of river banks of no less than 22,000 miles. It can be better grasped what this means when we remember that the whole coast-line of Europe, following every indentation of the shore—from the most northern point of Norway to the spot in the Black Sea where the Caucasus Mountains separate Europe from Asia—is only 17,000 miles, or 5,000 miles less than the total length of river banks past which the mighty Congo continually sweeps. To give another illustration, I may remind you that the circumference of the globe on which we live is 24,000 miles. So that the length of the banks of the Congo—so far as they are at present known—only falls some 2,000 miles short of the total girth of our planet. When the great river becomes more completely known the extent of the river's banks may probably be found to equal, and very possibly to exceed, the earth's circumference.

The total length of the main river—omitting the branches—from source to mouth is close upon three thousand miles, equal to the distance from Liverpool to New York.

The area of territory drained is something over 1,500,000 square miles, or equal, roughly speaking, to about one-eight of the whole continent of Africa. It exceeds the

total area of India by 200,000 square miles, and would only be equalled by thirty-two Englands. It is needless to quote further figures in order to impress upon us the enormous extent and importance of Africa's greatest waterway.

The wide-spreading arms of the Congo reach themselves out on all sides to such a distance and extent that the remote headwaters, or fountains, overlap and almost intermingle with the streams which contribute their waters to the other great rivers of the continent. On the north-west we find some of the early streams flowing almost from the same sources which supply tributaries of the Niger and the Shari. In the north-east we find the remote tributaries of the Welle-Makua almost touching those of the Bahr-el-Ghazal, which helps to swell the Nile. The headwaters of the Aruwimi, again, flow from within a few minutes' walk of where a view can be obtained of the Albert Lake, also belonging to the Nile system. The Malagarazi River, which flows into Lake Tanganyika, and so finds its way to the Congo, rises in the same hills which gave birth to the Alexandra Nile, a western affluent to Lake Victoria. We find, also, many of the great tributaries on the southern bank of the Congo flow from highlands which also pay tribute to streams flowing to the Zambezi.

In comparison with the historic tales the Nile and Niger have to tell us, the story of the Congo is only very modern. The early history of the great river is very meagre indeed, and we search the ancient classics in vain for any mention of even its existence.

The river was, and is to this day, known to the Portuguese as the Zaire, but the actual meaning of the word is

doubtful. Some consider it to simply mean river. The country through which the great river flows was known to the Portuguese as the kingdom of the Congo. The Zaire, therefore, appeared upon the early Portuguese maps as Rio de Congo, which, when translated, became, of course, on English maps, River of Congo, and finally simply Congo, as we now know it.

Although the mouth of the Congo was discovered by the Portuguese over four hundred years ago, very little was known of the geography of the river itself until our own century. Jesuit missionaries certainly settled in the kingdom of the Congo, and they doubtless collected much information from the native travellers regarding the geography of the interior.

The English geographer, Peter Heylyn, writing in 1657, speaks of the Zaire, or River of Congo, rising in Lake Zembre. After naming the rivers of the Country of Congo, he goes on to say: "This last (the Zaire), the greatest of them all, if not of all Africk also: Of which, though we have spoke already, we shall add this here, that it falleth into the Æthiopic Sea with so great violence, that for ten miles commonly, for fifteen sometimes, the waters of it do retain their natural sweetness: not intermingled nor corrupted with the Salt Sea-water: Nor can the people sail above five miles against the stream of the cataracts, or huge falls which it hath from the Mountains; more terrible and turbulent than those of the Nile."

The great discoveries connected with the Congo have been in almost all cases the result of inquiries set on foot for other purposes, and not the outcome of direct research. This is especially the case with regard to the long and tedious wanderings of Dr. Livingstone, between the years

1866 and 1873, which terminated only in his death in the latter year. When Livingstone started upon his last and greatest expedition in 1866, it was with the idea of clearing up certain doubtful points connected with Lakes Tanganyika and Nyasa, and of establishing, if possible, the southern limit of the Nile watershed. He had no intention of working at the Congo at all, and, in fact, remarks in his journal, in a half jocular manner, that he had no desire to become "blackman's meat" for anything less than the Nile.

Stanley's great journey from Nyangwe to Boma made known, of course, only the main stream of the river, but it opened the way, and from that day down to the present a whole legion of travellers, both British and European, have devoted themselves to the filling in of the details. The great traveller himself shortly after discovered lakes Leopold II. and Mantumba; and so recently as 1887 explored the great Aruwimi territory, following it to its source in the neighbourhood of the Albert Lake, when engaged in his last great journey through "Darkest Africa."

The Nineteenth Century has been what we may call the age of discovery, so far as the Congo is concerned. The geography of the river is now fairly well known, the discoveries of the past twenty years having undoubtedly transcended all possible expectations or even conceptions. The next century will in all probability be one of Congo commerce and Congo engineering. Already we find a railway some 250 miles in length, in course of construction, which, when completed, will overcome the natural difficulties of transport in the neighbourhood of the Livingstone Falls, and throw open to the world the

mighty natural highway to the heart of the Continent. Already we find, in spite of the difficulties of the cataract region, that some thirty odd steamers are daily ploughing their way up and down the Congo's giant stream. Thus has the great river begun the work of bearing the naturally rich products of the Congo basin to the coast, and of carrying the return commodities into the interior.

The work of the explorer, the trader, and the missionary is already beginning to bear fruit. In their wake will follow civilization, commerce and Christianity. Cities—centres of industry and light—will be founded, and in due time the peoples of the "Heart of Africa" will take their place in the progress of the world.

THE MACKENZIE RIVER

WILLIAM OGILVIE

FORT McPHERSON stands on a high bank of gravel and slate, on the east side of the Peel River, about fourteen miles above the point where it divides and joins the Mackenzie delta, which is common to both rivers. The height of this bank rapidly decreases towards the mouth of the river, where it almost entirely disappears. The country surrounding has evidently at one time been a part of the Arctic Ocean which has been gradually filled up with alluvial deposits brought down by the two rivers.

On this rich soil, the timber, mostly spruce, with some tamarack, birch and poplar, is, for the latitude, very large. When I arrived at Fort McPherson, on the 20th of June, the new buds on the trees were just perceptible, and on the evening of the 22d, when I left, the trees were almost fully in leaf.

Between Peel River and the Mackenzie about two-thirds of the channel in the delta averages more than a quarter of a mile wide; the remainder about one hundred yards. All of it was deep when I passed through, and the Hudson's Bay Company's steamer, *Wrigley*, drawing five feet of water, finds no difficulty in navigating it. The banks do not rise more than ten or fifteen feet above the water, and the current is continually wearing away the soft deposit and carrying it down to the lower part of the delta and to the Arctic Ocean.

Where we enter the Mackenzie proper, the channel is three-fourths of a mile wide, but it is only one of four, there being three large islands at this point. The whole width of the river cannot be less than three or four miles. Looking northward, down the westerly channel, the view is bounded by the sky, and widens in the distance so that one can fancy he is looking out to sea.

A north wind raises quite a swell here, and the salty odour of the sea air is plainly perceptible above the delta. The banks continue low, and the country flat on both sides of the river, for some nine or ten miles above the islands. The shore on the east side is sloping, while that on the west is generally perpendicular, showing the action of the current, which is wearing into and carrying away portions of it. This form of bank changes into steep shale rock on both sides, gradually increasing in height as far as the Narrows, where they are probably one hundred and fifty feet above the water.

On the Mackenzie I did not stay long enough to learn much about the Indians in the district, nor did I see many of them. While we were in the delta, nine large boats loaded with Esquimaux from the coast passed us on the way up to Fort McPherson to do their trading for the season, in one of which I noticed a young woman devouring a raw musk-rat with evident relish. These people come up from the coast in "skin" boats, called *oumiaks*, made, it is said, of whale skin put round a wood frame. These boats present a very neat appearance, and are capable of carrying about two tons each. Whale oil is one of the principal articles which they bring in for sale.

A few miles above the Narrows the banks change from rock to clay and gravel, and continue generally steep and

high as far as Fort Good Hope. In a few places the bank recedes from the river for a short distance, forming a low flat, on which generally grows some fair spruce timber. No rivers of importance flow into the Mackenzie between Red and Hare Indian Rivers. One hundred and thirty miles further on, Loon River enters from the east, and, twenty miles above this Hare Indian River also enters from the same side. The Indians report that Hare Indian River rises in a range of hills on the north-west side of Great Bear Lake, but about its navigability I could learn nothing.

We reached Fort Good Hope on Saturday, the 24th of July, and remained over Sunday. The Fort is built on the east side of the Mackenzie, about two miles above Hare Indian River, and two below the "Ramparts." The Hudson's Bay Company has quite a large establishment at this point, consisting of half a dozen houses and some stables. The Roman Catholic Church has a flourishing mission here, and the church is said to possess one of the best finished interiors in the country.

Two miles above the Fort we enter what is known in the vicinity as the "Ramparts," though in the more south-westerly it would be called a "Cañon." Here, for a distance of seven miles, the river runs perpendicular and occasionally over hanging walls of rock. At the lower end they rise one hundred and fifty feet above the water. But their height decreases as we near the upper end, at which point they are not more than fifty or sixty feet. The river, at the lower end of the "Ramparts," is nearly a mile wide, but its walls gradually converge until, about three miles up, the width is not more than half a mile, and this continues to the end. Sir Alexander Mackenzie, when passing through, sounded at its upper end, and found three

hundred feet of water, which accounts for the fact that although the Cañon is so narrow the current is not perceptibly increased.

When Mackenzie discovered and explored this river in 1789, he met some Indians a short distance above this place. After confidence had been established by means of presents, he prepared to start onward; and, although his newly-made friends told him there was great danger ahead in the form of a rapid or cataract which would swallow him and his party without fail, he continued, the Indians following and warning him of his danger. He advanced cautiously into the "Ramparts," but could hear or see nothing to verify their statements. At last, when through, they admitted that the only bad weather to be encountered was now passed, but that behind the island just below was a bad spirit or monster which would devour the whole party: failing there, the next island below would surely reveal him.

From this incident the two islands have received the names of Upper and Lower Manitou, respectively.

Forty-eight miles from Fort Good Hope, Sans Sault Rapid is reached. It is caused by a ledge of rocks extending partially across the river.

A ridge of hills here extend beyond the river from the Rocky Mountains, occasional glimpses of which can be caught from the water.

Just above this the Mackenzie turns sharply to the east from its southerly course, and skirts the base of the mountains for six miles. Its course then curves a little to the south, when, what might be termed a cañon, is entered, which extends for nine or ten miles. The river here averages a mile in width, and is walled on both sides by perpen-

dicular limestone cliffs, rising from one to two hundred feet above the water. On the south side, this wall terminates in what is known as "Wolverine Rock," which rises perpendicularly from the water to a height of three hundred feet. The formation is limestone, the strata of which stand almost on edge, and the water has worn through them in several places, so that one can sail underneath. Above this point the mountains again approach the river for a few miles, when they suddenly drop almost to the level of the plain. The banks here are clay and gravel, with an average height of from one hundred to one hundred and fifty feet.

Six and one-half miles above Sans Sault Rapids, Carcajou River empties its waters into the Mackenzie from the west. This river I believe to be the largest tributary of the Mackenzie below the Laird.

Four hundred and forty-four miles from Fort McPherson brought us to Fort Norman, which is situated on the east bank of the Mackenzie just above the entrance of Great Bear River. I arrived here on Saturday, the 28th of July.

About three and a half miles above Fort Norman on the east bank of the river, two extensive exposures of lignite occur. The upper one is overlaid by about fifty feet of clay and a few feet of friable sandstone, and is about fifteen feet thick. The other seam is of about the same thickness, and probably forty feet lower. When I was there, it was nearly all under water.

The upper seam *has been on fire for over a hundred years*, as it was burning when Sir Alexander Mackenzie passed in 1789, and according to Indian tradition, it must have been burning much longer. The place is locally known as "Le Boucan," from the fact that the Indians hereabout smoke

and cook large quantities of meat or fish in these convenient fire pits. The fire extends at present about two miles along the river, not continuously, but at intervals; when I passed, it was burning in three or four places. After it has burned a certain distance into the seam, the overlaying mass of clay falls in, and, to some extinct, suppresses the fire. This clay is, in time, baked into a red coloured rock, in which are found innumerable impressions of leaves and plants.

About a hundred miles above Fort Norman, on the west side, a river discharges a large volume of clear, black water, which rushes bodily half-way across the Mackenzie, and preserves its distinctive character for several miles before it mingles with the main stream. The name applied to this river by the people at Fort Wrigley was "*La rivière du vieux grand luc.*" It is said to flow out of a lake of considerable extent, lying not far from the Mackenzie. Many peaks can be seen up its valley.

Six hundred and twenty-four miles from Fort McPherson brings us to Fort Wrigley. This post was formerly known as "Little Rapid," but has received the name it now bears in honour of Chief Commissioner Wrigley, of the Hudson's Bay Company. Just above the Fort there is a swift rush of water over some limestone rock which appears to extend across the river. On the west side two small islands confine a part of the stream in a funnel-like channel, which, being shallow, causes a slight rapid, and gives rise to the former name of the post.

At Fort Wrigley, some slight attempts had been made at cultivation, but I do not consider them a fair test of the capabilities of the place. When I was there, the people

were gathering blueberries, then fully ripe, and as large and well-flavoured as they are in Ontario. Ripe strawberries were found on the 9th of August ninety miles below this, and a few raspberries soon afterwards. Above Fort Wrigley, wild gooseberries, and both red and black currants were found in abundance ; some of the islands being literally covered with the bushes.

For about sixty miles below Fort Wrigley a range of mountains runs parallel to the river on its east side. Above Fort Wrigley the east bank is generally low and swampy, but the west (although low near the river) gradually rises to a height of seven or eight hundred feet. Fifty-eight miles above Fort Wrigley this hill terminates in a bold, high point, and the ridge turns off to the south-west, enclosing a deep, wide valley between it and the mountains, which here approach the river. This range continues south-eastward out of sight. The positions and heights of some of the peaks were determined by triangulation. One of them was found to rise 4,675 feet above the river.

We arrived at Fort Simpson on Friday, the 24th of August, and remained until the following Tuesday.

We arrived at Fort Providence on Saturday, the 8th of September. Wild gooseberries and currants were plentiful along the banks, but at this season somewhat over-ripe. At the fort, where we remained over Sunday, the usual collection of buildings at a Hudson Bay Company's post is to be found. The Roman Catholic Church has also a mission here.

Forty-six miles from Fort Providence we enter Great Slave Lake. The south shore of the lake, between the Mackenzie and Great Slave Rivers, is so low and flat that most of it was submerged when I passed. Fish are numer-

ous in the Mackenzie. The principal species is that known as the "Inconnu." Those caught in the lower river are very good eating, much resembling salmon in taste, being also firm and juicy.

THE LOIRE

VICTOR HUGO

I HAVE some recollection of having already said so elsewhere: the Loire and Touraine have been far too much praised. It is time to render justice. The Seine is much more beautiful than the Loire; Normandy is a much more charming "garden" than Touraine.

A broad, yellow strip of water, flat banks, and poplars everywhere—that is the Loire. The poplar is the only tree that is stupid. It masks all the horizons of the Loire. Along the river and on the islands, on the edge of the dyke and far away in the distance, one sees only poplars. In my mind there is a strangely intimate relationship, a strangely indefinable resemblance, between a landscape made up of poplars and a tragedy written in Alexandrines. The poplar, like the Alexandrine, is one of the classic forms of boredom.

It rained; I had passed a sleepless night. I do not know whether that put me out of temper, but everything on the Loire seemed to me cold, dull, methodical, monotonous, formal, and lugubrious.

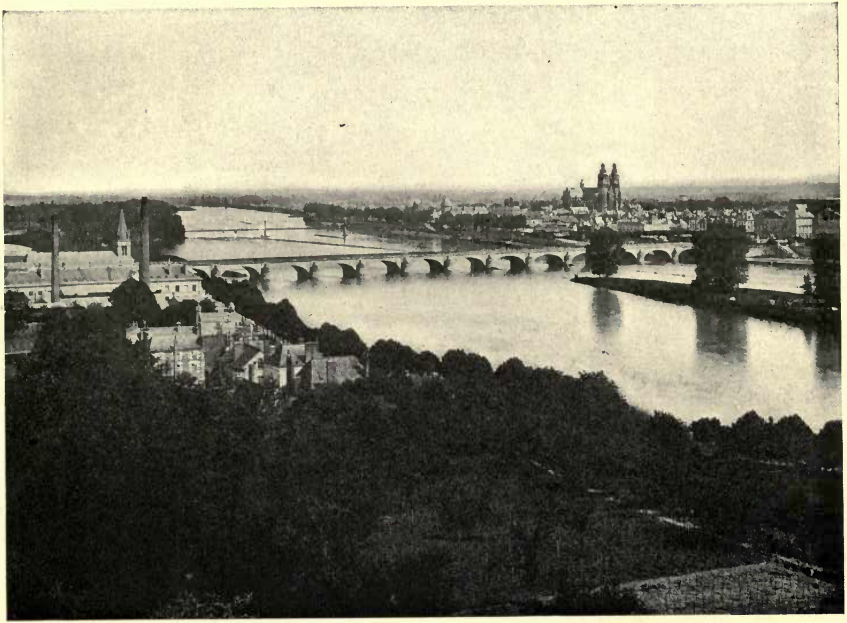
From time to time one meets convoys of five or six small craft ascending or descending the river. Each vessel has but one mast with a square sail. The one that has the biggest sail precedes the others and tows them. The convoy is arranged in such a fashion that the sails grow smaller in size from one boat to the other, from the first to the last,

with a sort of symmetric decrease unbroken by any unevenness, undisturbed by any vagary. One involuntarily recalls the caricature of the English family; one might imagine one saw a chromatic scale sweeping along under full sail. I have seen this only on the Loire; and I confess that I prefer the Norman sloops and luggers, of all shapes and sizes, flying like birds of prey, and mingling their yellow and red sails with the squall, the rain, and the sun, between Quillebœuf and Tancarville.

The Spaniards call the Manzanares "the viscount of waterways"; I suggest that the Loire be called "the dowager of rivers."

The Loire has not, like the Seine and the Rhine, a host of pretty towns and lovely villages built on the very edge of the river and mirroring their gables, church-spires, and house-fronts in the water. The Loire flows through a great alluvion caused by the floods and called La Sologne. It carries back from it the sand which its waters bear down and which often encumber and obstruct its bed. Hence the frequent risings and inundations in these low plains which thrust back the villages. On the right bank they hide themselves behind the dyke. But there they are almost lost to sight. The wayfarer does not see them.

Nevertheless, the Loire has its beauties. Madame de Staël, banished by Napoleon to fifty leagues' distance from Paris, learned that on the banks of the Loire, exactly fifty leagues from Paris, there was a *château* called, I believe, Chaumont. It was thither that she repaired, not wishing to aggravate her exile by a quarter of a league. I do not commiserate her. Chaumont is a dignified and lordly dwelling. The *château* which must date from the Sixteenth Century, is fine in style; the towers are massive.



THE LOIRE

The village at the foot of the wooded hill presents an aspect perhaps unique on the Loire, the precise aspect of a Rhine village—of a long frontage stretching along the edge of the water.

Amboise is a pleasant, pretty town, half a league from Tours, crowned with a magnificent edifice, facing those three precious arches of the ancient bridge, which will disappear one of these days in some scheme of municipal improvement.

The ruin of the Abbey of Marmontiers is both great and beautiful. In particular there is, a few paces from the road, a structure of the Fifteenth Century—the most original I have seen: by its dimensions a house, by its machicoulis a fortress, by its belfry an *hôtel de ville*, by its pointed doorway a church. This structure sums up, and, as it were, renders visible to the eye, the species of hybrid and complex authority which in feudal times appertained to abbeys in general, and, in particular, to the Abbey of Marmontiers.

But the most picturesque and imposing feature of the Loire is an immense calcareous wall, mixed with sandstone, millstone, and potter's clay, which skirts and banks up its right shore, and stretches itself out before the eye from Blois to Tours, with inexpressible variety and charm, now wild rock, now an English garden, covered with trees and flowers, crowned with ripening vines and smoking chimneys, perforated like a sponge, as full of life as an ant-hill.

Then there are deep caves which long ago hid the coiners who counterfeited the E. of the Tours mint, and flooded the province with spurious *sous* of Tours. To-day the rude embrasures of these dens are filled with pretty window-frames coquettishly fitted into the rock, and from

time to time one perceives through the glass the fantastic head-dress of some young girl occupied in packing aniseed, angelica, and coriander in boxes. The confectioners have replaced the coiners.

THE LOIRE

HONORÉ DE BALZAC

THE banks of the Loire, from Blois to Angers, have been high in favour with the two last branches of the royal race that occupied the throne before the House of Bourbon. This beautiful basin so richly deserves the honours paid to it by royalty that this is what one of our most elegant writers has said of it:

"There exists in France a province that has never been sufficiently admired. Perfumed like Italy, flowered like the banks of the Guadalquiver, and beautiful in addition with its individual physiognomy, and entirely French, having always been French, in contrast to our northern provinces, corrupted by German contact, and our southern provinces that have lived in concubinage with the Moors, Spaniards and all races that desired to;—this province pure, chaste, brave and loyal is Touraine! Historic France is there! Auvergne is Auvergne; Languedoc is only Languedoc, but Touraine is France; and for us the most national river of all is the Loire that waters Touraine. Hence, we should not be so astonished at the quantity of monuments found in the Departments that have taken the name and derivatives of the name of the Loire. At every step we take in this land of enchantment, we discover a picture the frame of which is a river or a tranquil oval sheet that reflects in its liquid depths a castle with its turrets, woods and springing waters. It was only natural that where

royalty abode by preference and established its court for such a long period the great fortunes and distinctions of race and merit should group themselves and raise palaces there grand as themselves."

Is it not incomprehensible that Royalty did not follow the advice given by Louis XI. indirectly to make Tours the capital of the kingdom? There, without much expenditure, the Loire could have been made accessible to trading vessels and to ships of war of light draught. There, the seat of government would have been secure from the surprise of an invasion. The northern strongholds would not then have demanded so much money for their fortifications, as costly to themselves as the sumptuousness of Versailles. If Louis XIV. had listened to the advice of Vauban, who wanted to build a residence for him at Mont Louis, between the Loire and the Cher, perhaps the Revolution of 1789 would not have occurred. Still, here and there, those lovely banks bear the marks of the royal affection. The castles of Chambord, Blois, Amboise, Chenonceaux, Chaumont, Plessis-lez-Tours, all those which the mistresses of our kings, and the financiers and great lords built for themselves at Véretz, Azay-le-Rideau, Ussi, Villandri, Valençay, Chanteloup, Duretal (some of which have disappeared but the majority still exist) are admirable monuments that are redolent with the marvels of that epoch that is so ill comprehended by the literary sect of Mediævalists. Among all these castles, that of Blois is the one on which the magnificence of the Orleans and the Valois has set its most brilliant seal; and is the most interesting of all for the historian, the archæologist, and the Roman Catholic.

THE POTOMAC

ESTHER SINGLETON

THE Potomac was an important river from the earliest period of the country's history. Explorers followed its route to the interior of the country, and as early as 1784 The Potomac Company was chartered with Washington as its president for the purpose of connecting the Potomac Valley with the west by means of a canal for general land improvement. This was succeeded by the Chesapeake and Ohio Canal Company, whose canal runs parallel with and near to the river all the way from Georgetown to Cumberland.

The first attempt to explore the Chesapeake Bay and its tributary rivers was made in 1608 by Captain John Smith, who speaks of the Patawomeke as six or seven miles broad and navigable for 140 miles. Another Indian name was Cohonguroton (River of Swans). No less than forty tribes of the warlike Algonquins lived upon its banks and held their councils at the point of land now occupied by the Arsenal.

In 1634, Henry Fleet with some of Calvert's people visited the Falls of the Potomac; and early in the Seventeenth Century several tracts of land on the river banks were granted to settlers. Among these was one Francis Pope, gentleman, who in 1663 had four hundred acres laid out which he called Rome, on the east side of the Anacostian River and to the mouth of the Tiber, for so this little arm

of the Potomac was called more than a century before Washington was founded, there being a tradition that on its banks would rise a capital greater than Rome. The Tiber has now disappeared beneath the streets of Washington, but it once flowed below the hill on which the Capitol now stands between forest-lined banks and was noted for its shad and herring.

The Potomac is formed by the junction of two rivers on the boundary between Maryland and West Virginia. The North Branch rises in the Western Alleghanies and the South Branch in the Central; and, flowing north-east, they unite about fifteen miles south-east of Cumberland. The Potomac thus forms an irregular boundary between Maryland and West Virginia and Maryland and Virginia throughout its entire course of four hundred miles. Its chief tributaries are the Shenandoah from Virginia and the Monocacy from Maryland. At Harper's Ferry the Potomac breaks through the Blue Ridge meeting the Shenandoah—"Daughter of the Stars"—which has cut its way through the mist-wreathed mountains, laved the Luray Caverns and watered a lovely valley. These rivers winding around Loudon Heights, Bolivar Heights and Maryland Heights are picturesque in the highest degree, and the scenery is rendered more interesting by the associations with John Brown's raid and capture and other thrilling incidents of the Civil War.

Twelve miles below is Point of Rocks and below this the Monocacy joins the main stream.

A number of falls mark its course through the mountains; and about fifteen miles above Washington it descends rapidly until it reaches Great Falls, at which point it breaks through the mountain in a channel narrowing to a hundred



THE POTOMAC

yards in width and bounded on the Virginia side by perpendicular rocks seventy feet high. Cedars, oaks, willows and other forest trees contribute beauty to this wild spot, where cherries and strawberries abound, and which is the haunt of the rattlesnake and other venomous reptiles. The water falls in a series of cascades. Not far from this point Cabin-John Bridge is reached, a bridge formed of large blocks of granite 420 feet long and twenty feet wide, which springs the chasm of Cabin-John Creek at a height of 101 feet in a single arch of 220 feet. This is the largest stone arch in the world, the second being the Grosvenor Bridge (with a span of 200 feet), over the Dee.

At a distance of four miles below Great Falls, the stream widens and flows quietly for ten miles; and then descends thirty-seven feet in a second series of cascades known as Little Falls, about three miles above Georgetown. The Potomac, thus released from the hills above Georgetown, expands into a broad lake-like river, and receives the Anacostia at Washington, where it meets the tide. About twenty-five miles below Washington, it becomes an estuary from two to eight miles wide, and enters the Chesapeake Bay, after having made a journey of four hundred miles.

The chief places of interest on the banks of the Potomac are, of course, Washington, *Arlington House*, *Mount Vernon*, and the sleepy old town of Alexandria founded in 1748 and once a rival of Annapolis and Baltimore. It is full of associations with Washington, whose estate, *Mount Vernon*, is but a few miles below. *Mount Vernon*, in Washington's time, an estate of two thousand acres, belonged originally to his half-brother, Lawrence, who named it for Admiral Vernon under whom he had served.

Arlington House, the residence of the adopted son of General Washington, George Washington Parke Custis, came into possession of Gen. Robert E. Lee through his wife who was the daughter of Mr. Custis. The house, built from drawings of the temple at Pæstum, near Naples, stands on a bluff two hundred feet above the river about four miles from Washington. The building with its two wings has a frontage of 140 feet and the portico sixty feet long is surmounted by a pediment resting on eight Doric columns twenty-six feet high and five feet in diameter. On the south were the gardens and greenhouses, and in the rear the kitchens, slave quarters and stables. In 1863 *Arlington House* and the estate of 1,000 acres was sold under the Confiscation Act and taken possession of by the National Government; and in 1867 the grounds were appropriated for a National Cemetery.

The Potomac was the scene of skirmishes in 1814, when Alexandria surrendered to the British; and in this connection it is interesting to learn what Admiral Napier, who commanded the fleet, has to say regarding the ascent of the river:

"The river Potomac is navigable for frigates as high up as Washington, but the navigation is extremely intricate and nature has done much for the protection of the country by placing one-third of the way up, very extensive and intricate shoals, called the 'Kettle Bottoms.' They are composed of oyster banks of various dimensions, some not larger than a boat, with passages between them.

"The best channel is on the Virginia shore; but the charts gave us mostly very bad directions and no pilots could be procured. A frigate had attempted some time before to effect a passage, and, after being frequently aground, gave it up as impossible. The American frigates them-

selves never attempted it with their guns in, and were several weeks in the passage from the naval yard at Washington to the mouth of the Potomac.

"When the tide was favourable and the wind light, we warped by hand; with the ebb and the wind strong, the hawsers were brought to the capstan. This operation began at daylight and was carried on without interruption till dark and lasted five days, during which the squadron warped upwards of fifty miles, and on the evening of the fifth day anchored off Maryland Point. The same day the public buildings of Washington were burnt. The reflection of the fire on the heavens was plainly seen from the ships, much to our mortification and disappointment, as we concluded that that act was committed at the moment of evacuating the town. . . .

"The following morning, to our great joy, the wind became fair, and we made all sail up the river, which now assumed a more pleasing aspect. At five o'clock in the afternoon *Mount Vernon*—the retreat of the illustrious Washington—opened to our view and showed us, for the first time since we entered the Potomac, a gentleman's residence. Higher up the river, on the opposite side, Fort Washington appeared to our anxious eyes; and, to our great satisfaction, it was considered assailable.

"A little before sunset the squadron anchored just out of gun-shot; the bomb vessels at once took up their positions to cover the frigates in the projected attack at daylight next morning and began throwing shells. The garrison, to our great surprise, retreated from the Fort; and, a short time after, Fort Washington was blown up—which left the capital of America, and the populous town of Alexandria, open to the squadron, without the loss of a man.

"A deputation from the town arrived to treat; but Captain Gordon declined entering into any arrangement till the squadron arrived before Alexandria. The channel was buoyed, and next morning the 27th, we anchored abreast of the town and dictated terms.

"Alexandria is a large well-built town and a place of great trade. It is eight miles below Washington, where few merchant ships go, and is, in fact, the mercantile capital, and, before the war, was a most flourishing town, but at the time of its capture had been going rapidly to decay. Agricultural produce was of little value; the storehouses were full of it. We learnt that the army after destroying Barney's flotilla, had made a forced march on Washington, beat the Americans at Bladensburg, destroyed the public buildings and navy yard, and retreated to their ships. Had our little squadron been favoured by wind, the retreat would have been made along the right bank of the Potomac, under our protection, and the whole country in the course of that river would have been laid under contribution."

THE EUPHRATES

GEORGE RAWLINSON

EUPHRATES is probably a word of Arian origin. It is not improbable that in common parlance the name was soon shortened to its modern form of *Frât*, which is almost exactly what the Hebrew literation expresses.

The Euphrates is the largest, the longest, and by far the most important of the rivers of Western Asia. It rises from two chief sources in the Armenian Mountains, one of them at Domli, twenty-five miles north-east of Ezeroum, and little more than a degree from the Black Sea; the other on the northern slope of the mountain range called *Ala-Tagh*, near the village of *Diyadin*, and not far from Mount Ararat. Both branches flow at first towards the west or south-west, passing through the wildest mountain-districts of Armenia; they meet at *Kebban-Maden*, nearly in longitude 39° east from Greenwich, having run respectively 400 and 270 miles. Here the stream formed by their combined waters is 120 yards wide, rapid and very deep. The last part of its course, from *Hit* downwards, is through a low, flat, and alluvial plain, over which it has a tendency to spread and stagnate; above *Hit*, and from thence to Samosata, the country along its banks is for the most part open but hilly; north of Samosata, the stream runs in a narrow valley among high mountains, and is interrupted by numerous rapids. The entire course is calculated at 1,780 miles, nearly 650 more than that of the Tigris, and only

200 short of that of the Indus; and of this distance more than two-thirds (1,200 miles) is navigable for boats, and even, as the expedition of Col. Chesney proved, for small steamers. The width of the river is greatest at the distance of 700 or 800 miles from its mouth. The river has also in this part of its course the tendency already noted, to run off and waste itself in vast marshes, which every year more and more cover the alluvial tract west and south of the stream. From this cause its lower course is continually varying, and it is doubted whether at present, except in the season of the inundation, any portion of the Euphrates water is poured into the *Shat-el-Arab*.

The annual inundation of the Euphrates is caused by the melting of the snows in the Armenian highlands. It occurs in the month of May. The rise of the Tigris is earlier, since it drains the southern flank of the great Armenian chain. The Tigris scarcely overflows, but the Euphrates inundates large tracts on both sides of its course from Hit downwards.

The Euphrates has at all times been of some importance as furnishing a line of traffic between the east and the west. Herodotus speaks of persons, probably merchants, using it regularly on their passage from the Mediterranean to Babylon. Alexander appears to have brought to Babylon by the Euphrates route vessels of some considerable size, which he had had made in Cyprus and Phœnicia. They were so constructed that they could be taken to pieces, and were thus carried piecemeal to Thapsacus, where they were put together and launched. The disadvantage of the route was the difficulty of conveying return cargoes against the current. According to Herodotus, the boats which descended the river were broken to pieces and sold at Babylon, and

the owners returned on foot to Armenia, taking with them only the skins. The spices and other products of Arabia formed their principal merchandise. On the whole there are sufficient grounds for believing that throughout the Babylonian and Persian periods this route was made use of by the merchants of various nations, and that by it the east and west continually interchanged their most important products.

The Euphrates is first mentioned in Scripture as one of the four rivers of Eden. We next hear of it in the covenant made with Abraham where the whole country from "the great river Euphrates" to the river of Egypt is promised to the chosen race. In Deuteronomy and Joshua we find this promise was borne in mind at the time of the settlement in Canaan; and from an important passage in the first Book of Chronicles it appears that the tribe of Reuben did actually extend itself to the Euphrates in the times anterior to Saul. Here they came in contact with the Hagarites, who appear upon the middle Euphrates in the Assyrian inscription of the later empire. It is David, however, who seems for the first time to have entered on the full enjoyment of the promise, by the victories which he gained over Hadadezer, king of Zobah, and his allies, the Syrians of Damascus. The object of his expedition was "to recover his border," and "to establish his dominion by the river Euphrates"; and in this object he appears to have been altogether successful; in so much that Solomon, his son, who was not a man of war, but only inherited his father's dominions, is said to have "reigned over all kingdoms from the river (the Euphrates) unto the land of the Philistines and unto the border of Egypt. Thus during the reigns of David and Solomon the dominion of

Israel actually attained to the full extent both ways of the original promise, the Euphrates forming the boundary of their empire to the north-east, and the river of Egypt to the south-west. The "Great River" had meanwhile served for some time as a boundary between Assyria and the country of the Hittites, but had repeatedly been crossed by the armies of the Ninevite kings, who gradually established their sway over the countries upon its right bank. The crossing of the river was always difficult; and at the point where certain natural facilities fixed the ordinary passage, the strong fort of Carchemish had been built, probably in very early times, to command the position. Hence, when Necho determined to attempt the permanent conquest of Syria, his march was directed upon "Carchemish by Euphrates," which he captured and held, thus extending the dominion of Egypt to the Euphrates, and renewing the old glories of the Rameside kings.

These are the chief events which Scripture distinctly connects with the "Great River." It is probably included among the "rivers of Babylon," by the side of which the Jewish captives "remembered Zion," and wept, and no doubt is glanced at in the threats of Jeremiah against the Chaldean "waters" and "springs," upon which there is to be a "drought," that shall "dry them up." The fulfilment of these prophecies has been noticed under the head of Chaldæa. The river still brings down as much water as of old, but the precious element is wasted by neglect of man; the various water-courses along which it was in former times conveyed, are dry; the main channel has shrunk; and the water stagnates in unwholesome marshes.

THE WYE

A. R. QUINTON

AMONG the many beautiful streams of Britain there is perhaps not one of which has so many and so varied charms as the River Wye. Issuing from the southern slopes of the great Welsh mountain, Plinlimmon, it begins its life as a mountain torrent, but gradually sobers down into a placid stream, flowing in a sinuous course of one hundred and thirty odd miles, and receiving many tributary streamlets before it mingles its waters with those of its big sister, the Severn, a few miles below Chepstow. Thickly dotted along its banks are picturesque ruined castles, abbeys, and manor-houses—each with its own story to tell of bygone days; quaint old towns, and at least one stately cathedral, each bearing names which often recur in the pages of history, and still retaining signs of the age when kings, barons, and Commoners, priests and laymen, struggled for supremacy.

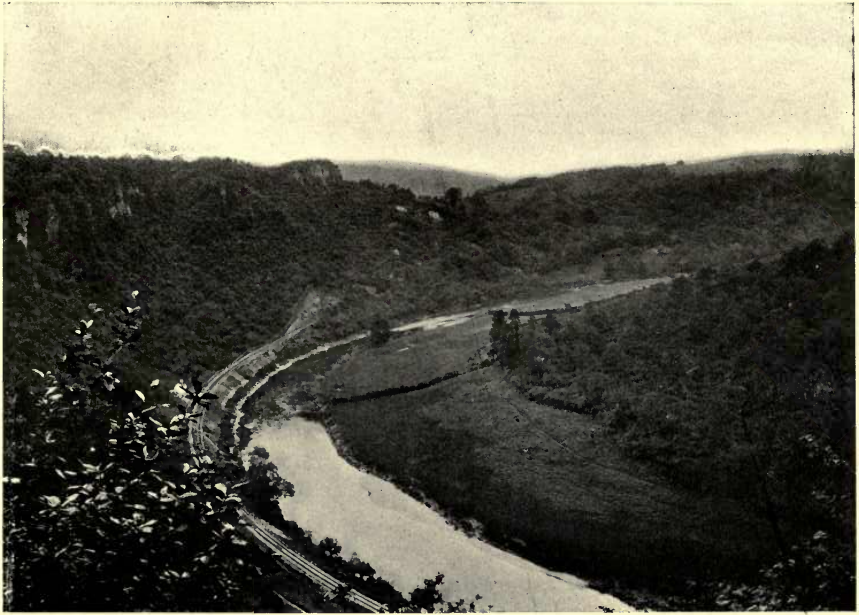
Although there is much that is interesting and pleasing in the earlier part of its course, it is at Ross that the romantic scenery of the Wye may be said to commence. Above that town the river flows for many miles through a fairly open valley, bordered indeed with wooded hills, but with a broad expanse of meadow land between their feet and its margin. But on approaching Ross the slopes draw nearer to the brink of the stream, and for twenty miles or more the Wye flows through an almost continuous glen, carved deeply out of a lofty and undulating table-land.

The ancient town of Ross, our starting place, is chiefly built upon the slope of a hill terminating on a plateau, descending steeply to the river. Upon this plateau stands the church, with its adjoining garden, the Prospect, which commands a lovely view over the valley of the Wye; whence the graceful spire of the church forms a landmark for all the country round.

The district traversed by the Wye in the first stage of its seaward journey, from Ross to Monmouth, is an elevated upland, a region of rolling hills shelving down towards winding valleys, whose declivities become abrupt towards the margin of the main river. Near to this the hills are often scarped into cliffs and carved into ridges, but further back we have slopes and undulations, cornfields and scattered woodlands, in marked contrast with the crags and forest-clad glades near the edge of the swift and strong stream. The valley narrows after leaving Ross, but the scenery improves as we come in view of Goodrich Castle, crowning a wooded steep above the river, and Goodrich Court, also seated on an eminence. The latter is a modern imitation of a mediæval dwelling, and formerly contained the remarkably fine collection of ancient armour which has since found a home in the South Kensington Museum, and is known as the Meyrick Collection. The Castle, which is some distance beyond the Court, was in its day a fortress of formidable strength. There is little doubt that the keep was built about the period 1135–1154, in the time of King Stephen.

In the time of the civil wars it was held for the King Charles I. by Sir Henry Lingen, but was taken from him by the Parliamentarians in 1646.

At Goodrich the river commences one of its most re-



THE WYE

markable bends. From Goodrich Ferry to Huntsholme Ferry is little more than a mile overland, but by the river it is eight miles. The Wye sweeps round in an easterly direction after Kern Bridge is passed, then turns abruptly and flows for a mile in an opposite course, enclosing in the loop thus formed the house and grounds of Courtfield, where, in a more ancient mansion, "Wild Prince Hal" is reported to have passed the days of early childhood, under the care of the Countess of Salisbury. The pretty village of Welsh Bicknor is also passed, and then we presently come in view of the lofty Coldwell Rocks, where the river, which for a time has pursued a southerly direction, now doubles back almost upon its former course, and makes the most remarkable curve in the whole of its windings from Plinlimmon to the sea. It is far-famed Symonds' Yat, a limestone plateau some 600 feet above the river, which here describes a huge elongated loop, so that after a course of between four and five miles it returns again to within less than half a mile of its former channel.

More extensive prospects may, doubtless, be obtained from other view points, but for a grand combination of rocks and woodlands, this spot may well take the palm. After leaving the Yat, the Wye bends round the stone hills on its right bank. On both are remarkable encampments, whilst fossil remains of hyena, elephant, stag, and other animals have been found in a cave known as King Arthur's Cave, on the former hill.

Very lovely is the course of the river as it flows onward through steep and densely wooded slopes and presently brings us in view of a detached cluster of rocks called the "Seven Sisters." This part of the Wye is reported to have a greater depth than any other length in its course.

At the end of the reach is the beautiful level height called King Arthur's Plain, which in the distance assumes the appearance of towers belonging to an ancient castle. The high road turns away from the river at the apex of Symonds' Yat, but a foot-path follows the banks on either side as far as Monmouth. Shortly before reaching that town the wilder and more romantic part of the Wye ends and the river pursues a straighter and less ruffled course.

The situation of the town of Monmouth is remarkably picturesque. Beautiful hills surround it on all sides, but the valley has expanded to allow the Monnow and the Trothy to form a junction with the Wye. A curious old bridge spans the Monnow, bearing on its first pier an ancient gate-house, one of the few survivors of a defensive work once common in England, which, though somewhat altered by being pierced with postern arches for foot-passengers, still retains the place for its portcullis and much of its ancient aspect. Formerly the town was surrounded by a wall and moat, and was entered by four gates, of which the Monnow Gate alone remains.

A short distance below Monmouth the Wye again enters a narrow glen, hardly less beautiful if less romantic, than the gorge which it has traversed on its course from Ross to Monmouth. The hills once more close in upon the river, leaving but seldom even a strip of level meadow between its margin and their slopes. The steeply wooded banks are so wild and so continuous that at times we seem to be passing through an undisturbed remnant of primeval forest. At Red Brook, however, there are signs of human activity. A pretty glen here descends from among the hills to the left bank of the Wye. By the riverside are little quays with barges alongside, and, alas, it must also be added, tall chim-

neys pouring forth smoke to mar the beauty of a lovely spot.

At Bigswier the river is spanned by an iron bridge, thrown lightly from bank to bank, and is of sufficiently pleasing design to harmonize with the surroundings. From this point the Wye is affected by the tide, but not to any appreciable extent, until a few miles below, in the neighbourhood of Tintern. On a hill overlooking Bigswier stand the church and castle of St. Briavels. The castle was erected soon after the Norman conquest as one of the border defenses; it stands on the edge of the ancient Forest of Dean, and saw much rough work in its early days. The old keep is in ruins, but the other portions are used as a residence.

The next village encountered, on our way down the stream, is Llandago, which nestles among gardens and orchards, and rises tier above tier on the thickly wooded hill which rises steeply from the road beside the river. Near by is Offa's Chair—a point in the great earthwork known as Offa's Dyke, which once extended from Tidenham, across Herefordshire and Radnorshire, to the Flintshire hills beyond Mold, and perhaps to the coast of North Wales. As the valley again slightly expands, shelving bands of sward, dotted with houses, announce that we are approaching the precincts of the far-famed Tintern Abbey. First we must pass the long and scattered village of Tintern Parva, whose pretty white cottages and pleasant gardens extend for a mile along the river's bank, which here makes another of its sharp bends. Cunningly indeed did the monks of old choose their dwelling places. There is no spot for many a mile which so completely fulfils the requirements of quiet and seclusion with certain mundane comforts, as that which they have selected. As one gazes

at this noble relic, and the winding Wye stealing past it through the hills, one must accord the first place among the classic ruins of this island, in so far as regards the beauty of its situation. Forests were near at hand to supply them with fuel without stint, and game for their table on days of feasting. The tidal river would bring the barks of merchandise to their very door, and its leaping salmon would alleviate the severity of their fast days. Chepstow, with its castle, guarded them from marauders by the sea, and they were far enough within the line of border fortresses to fear no ill from incursions from the mountains of Wales.

The plan of the foundation of the Abbey is cruciform, and what remains of the grey skeleton of the edifice affords a fine example of early Twelfth-Century work. It was founded in the year 1131 by one Walter de Clare "for the good of his soul, and the soul of his kinsmen," and was confined to the use of monks of the Cistercian order. Two inscribed tombs in the cloisters give the names of two of the abbots, but, apart from such fragmentary scraps of information, the history of Tintern may be said to have perished with the Abbey. The scene on entering the interior, is most impressive. Vaulted roof and central tower are gone, but the arches which supported the latter are intact. The glass, of course, has long since perished with the windows, even the mullions and tracery are gone; ivy, ferns, and herbage, form a coping for the wall; the greensward has replaced the pavement of stone or tiles; but still it is hardly possible to imagine a more imposing and lovely scene than these ruins.

Between Tintern and Chepstow the scenery of the Wye assumes an entirely fresh character. As we approach the Wynd cliff, the grassy bed of the river opens out into a

sort of amphitheatre, and we can trace the huge horseshoe curve swept out upon its floors by the stream, between the base of the Wynd cliff which it washes, and the mural escarpment of Bannagor and Tidenham Crags, which form the opposite boundary of this great river-trench. It is a steep climb to the top of the Wynd cliff, but the glorious prospect obtained from the summit well repays the effort. Below is the beautiful horseshoe fold of the Wye, bounded by richly-wooded slopes that sweep from the right with a curve in the form of a sickle. Where the curve ends there stands an imposing wall of rock with a reddish base, its brow of dazzling white lined with green woodland, while far away towards the coast the point where the river enters the Severn estuary, which is here broadening out on its way towards the distant sea, is faintly visible. The beautiful grounds of Piercefield lie between the Wynd cliff and Chepstow. Art has here assisted Nature, in this domain, by carrying paths through a belt of woodland, with outlooks cunningly contrived to command the best views. These grounds are thrown open to the public on certain days.

The town of Chepstow occupies the right bank of the Wye, and is built upon a slope, which descends in places rather abruptly from the general level of the surrounding country to the river's brink. Formerly it was enclosed by walls, like Monmouth, considerable portions of which are here and there preserved, especially in the neighbourhood of the castle. One of the gates still remains in High Street. It is called the Town Gate, and was for a long time used as a prison. Chepstow Castle is approached by a gentle acclivity clothed with greensward.

THE INDIAN RIVER

L. C. BRYAN

THIS river, or sound, spans a region of a hundred and forty miles from north to south, is salt, and yet almost without tide, neither rising nor falling more than a few inches by the winds; lies upon the very shore of the Atlantic, and from one to seven miles wide—a most placid, safe and beautiful inland sea in the very teeth of a wild tempestuous ocean.

Unlike the St. John's or any other possible river, having no considerable rise or fall, its bordering lands are not overflowed, and unlike other seacoast waterways, it is not cumbered with interminable salt marshes. Its waters beat upon a bold, often abrupt shore, diversified into high and low lands of every grade and covered with the luxuriant vegetation common to warm climates.

Wonderfully beautiful is Indian River. There is no other such sheet of water in the world. Nature, with lavish hand, spread its waters and adorned its shores. The design of the Great Master Artist is seen in the narrow strip of land as a levee separating the river from the Atlantic, and in the forest on the levee as a great wind-break to curb the fierce winds of the ocean. Properly speaking, it is not a river, but a sound, or arm of the sea. Its centre is on an air line north and south 140 miles long, while its banks curve in and out in beautiful bays and grottoes. A few small creeks empty into it from the west, while the water



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THE INDIAN

empties into it from the Atlantic through Indian River Inlet and Jupiter Inlet.

It is a sea without its dangers, a river without a current, seldom calm, but always in motion from the winds. From this constant motion its water is kept pure. The winds of winter, coming from the north-west, are softened and warmed by the waters of the upper St. John's River, and the pine forests on the west of the hammocks of this river, and the winds of summer coming from the east, are tempered and cooled by the Gulf Stream, making the climate most delightful in winter and summer, and, perhaps, most to be desired of any in America.

Of the Indian River we find the following from the able pen of ex-Governor Gleason :

"Indian River, as it is called, is a sound, and lies parallel to the Atlantic, separated from it by a narrow strip of land varying from a few rods to three miles in width; it is a sheet of pure tide water, salt, clear and transparent. It has two inlets from the ocean—Indian River Inlet, about 100 miles from its north head, and Jupiter Inlet at its extreme southern end. From its north head to within twenty-five miles of Jupiter Inlet, it is from one to six miles wide; from Jupiter Inlet to the mouth of the St. Lucie River, a distance of about twenty-five miles, it is from one-fourth of a mile to a mile in width, and is known as Jupiter Narrows. It is affected very little by the tide and the current moves by the wind. Being in the region of the trade winds, with almost a constant breeze from the east during the daytime, it affords peculiar facilities for sailing up and down the river, and the people take advantage of it. Every house is either on the river bank or a short distance up some navigable stream flowing into it, and has a boat landing. It is the

Venice of America, and one can seldom look out upon the water without seeing boats sailing both ways. The river is well supplied with the finest oysters, sea-turtles, and a great variety of fish, among which are mullet, cavalli, snapper, blue fish, sheepshead and sea-trout. The manatee is caught at the mouth of the St. Lucie and Jupiter Inlet. Some of them weigh from 1,500 to 2,000 pounds and are very grand eating. They are found nowhere else in the United States, their principal habitat being near the mouths of the streams flowing into the Caribbean Sea, where they feed upon a peculiar grass called manatee, which grows at the bottom of most tide-water streams in the tropics."

Merritt's Island, which is about forty miles long and contains about thirty thousand acres is situated in the northern part of the river. The water on its east side is from one-fourth of a mile to six miles wide, and is known as Banana River. The shores of Indian River, both on the west side of Merritt's Island and on the main land, are free from swamps and marshes, and rise at an angle of from twenty to twenty-five degrees to an elevation of from twenty-five to fifty feet. In many places the banks are high bluffs The country on Merritt's Island, and the west shore has the appearance of an endless park, the timber being principally scattered pines, with an undergrowth of palmettos and grass, interspersed with an occasional forest of palm, live oak and other hard wood timbers.

The orange belt is from one to three miles in width, and is principally on the west side near the river. West of the orange belt are the St. John's prairies, which are unfit for orange culture, but afford fine pasturage, and are good for vegetables and the culture of sugar-cane and hay.

The river south of Indian River Inlet, on the eastern

shore, is skirted with a narrow belt of mangrove timber of only a few rods in width, which is very dense and almost impenetrable. It is a deep green the entire year, and presents a beautiful appearance. The strip of land adjacent to the ocean between Jupiter Inlet and the mouth of St. Lucie River, is known as Jupiter Island, and is about half a mile wide and twenty miles long. It has some excellent land and is elevated from fifteen to thirty feet above the sea. The river here, at Jupiter Narrows, is less than half a mile wide. The western bank is from forty to fifty feet high and covered with a dense low scrub of live oak bushes, not more than two or three feet high, and when viewed from the Island, these heights remind one of the green pastures of the north—they are always the same colour, a beautiful green. This portion of the river is full of oysters and the inlet is the finest fishing on the coast. On the bank of the river, at various places, are large mounds of clam and oyster shells; the largest of them near Jupiter Inlet, is nearly a quarter of a mile long and about forty feet high.

At the north end of the river are some fine live oak and palm hummock lands, very rich and suitable for orange groves, sugar-cane and garden vegetables. The climate from October to May is a perpetual Indian summer, commingled with the balmiest days of spring, seldom interrupted by storms and only with occasional showers, while most of the time there is a gentle breeze coming inland from the even-tempered waters of the Gulf Stream. The prevailing winds are easterly, being the trade winds, which extend as far north as Cape Carnaveral and are perceptible as far north as New Smyrna and St. Augustine. The nights are cool even in summer—the atmosphere invigourating and health restoring.

Mineral and other springs are frequent, many of them possessing medicinal properties. Game is abundant—bear, deer, quail and wild turkeys on the land, ducks on the lakes and rivers, and green turtle and fish in the waters. All of these, with its beautiful building sites, its superior surf bathing and boat sailing, the absence of swamps and marshes, will eventually cause the banks of this magnificent sheet of water to become one vast villa of winter residences.

THE NILE

J. HOWARD REED

THE holy river—"the Jove-descended Nile"—formerly bore the name of Ægyptus. Professor Rawlinson in his *History of the Ancient Egyptians*, says: "The term Egypt was not known to the ancient Egyptians themselves, but appears to have been first used by the Greeks as a name for the Nile, and thence extended to the country. It is stated by some authorities that the river received its present title from Nilus, an ancient king of Thebes, who named the stream after himself."

"Father Nile" was an object of great veneration to the ancients, and a gift of its waters was considered by them as a present fit for kings and queens. The veneration in which the river was held, of course, arose from the blessings of its annual overflow spread broadcast over its banks by fertilizing the seed of the sower, producing abundant crops for the sickle of the reaper, and thus making glad the heart of man. It is stated that the Arabs in the present day consider it a delicious privilege to slake their thirst with the salubrious and agreeable waters of the river, and I have read that they will even artificially excite thirst to indulge in the pleasure of imbibing refreshing and satisfying draughts from the "holy stream." The general Pescennius Niger is said to have cried to his soldiers: "What! crave you for wine, when you have the water of the Nile to drink?" Homer is stated to have said, no doubt referring

poetically to its regular and fertilizing overflow: "The Nile flows down from heaven." The Egyptians say that "If Mahomet had tasted the waters of the Nile, he would have prayed God to make him immortal, that he might have enjoyed them for ever."

The river has a total length of considerably over 3,000 miles, and is remarkable among the rivers of the world from the fact that for about the last 1,500 miles of its flow it receives no tributary—none, in fact, after the Albara or Tacazze. The consequence is that, by the time it reaches the sea, its volume is considerably reduced by evaporation, and from the large quantity of water used along its banks for irrigation and other purposes. The river is formed of two principal branches, the Bahr-el-Azrek, or Blue Nile, and the Bahr-el-Abiad, or White Nile, the latter of which is the main branch or true Nile. It receives also, as tributary rivers, the Atbara or Tacazze before mentioned, with the Sobat and Asua on the east side; and the Bahr-el-Gazelle on the west; besides other smaller and less important streams. Its waters are discharged into the Mediterranean through several mouths, the two principal of which are known as the Rosetta and Damietta mouths—the first-named being to the west and the other to the east. The principal island formed by the divisions of the river being shaped like the fourth letter of the Greek alphabet, takes the name of Delta; and the Nile is doubtless the river which first suggested what is now a technical name for all similar formations at the mouths of rivers.

The rise and overflow of the Nile caused by the seasonal rains of the interior, has been for ages noted for its regularity. The rise commences about midsummer, reaches its greatest height at the autumnal equinox, and has again sub-



THE NILE

sided by Christmas; leaving the land highly enriched by the fertilizing sediment of red earth brought down by the Abyssinian tributaries and deposited by the river. The land can then be worked and the crops planted. The rise and fall of the river is watched with great anxiety by the inhabitants of the Nile valley. At intervals along its banks river gauges, or nilometers, are fixed, upon which the variations of the river are duly recorded.

Nearly five centuries before the Christian era, the first great African traveller, Herodotus, writing about the Nile, said: "Respecting the nature of this river, I was unable to gain any information, either from the priests or any one else. I was very desirous, however, of learning from them why the Nile, beginning at the summer solstice, fills and overflows for a hundred days; and when it has nearly completed this number of days, falls short in its stream and retires; so that it continues low all the winter, until the return of the summer solstice."

Seneca writes that the Emperor Nero sent an exploring expedition under two centurions with military force to explore the countries along the banks of the Astapus or White River, and to search for the Nile's sources. They passed down the river a considerable distance until immense marshes were met with. They forced their way through, and continued their journey southward, until the river was seen "tumbling down or issuing out between the rocks." They were then obliged to turn back and declare their mission a failure. The centurions are stated to have brought back with them a map of the districts they had passed through, for the information of the Imperial Nero.

This early expedition succeeded in penetrating about 800 Roman miles south of Meroe—that is to say, reaching three

or four degrees north latitude. The place where water was seen "tumbling down from between the rocks" was probably the Fola or Mekade cataract, again discovered in our own day by the late General Gordon. The river here rushes through a narrow ravine, over and between rocks of from thirty to forty feet high. These falls are stated to be the only insurmountable obstacle to the navigation of the Nile, for vessels of considerable size, from the Mediterranean to the Albert Lake.

About seventy years later, during the Second Century, we find Claudius Ptolemy, a celebrated geographer and astrologer of Alexandria, writing about the Nile and its sources. He tells us that the "holy stream" rises some twelve degrees south of the equator, in a number of streams that flow into two lakes, situated east and west of each other; from which, in turn, issue two rivers; these afterwards unite and form the Nile. Ptolemy also mentions that in the interior of Africa were some mountains which he called "*Selenes Oros*"—generally translated "Mountains of the Moon."

Following in the steps of Ptolemy, come the Arab geographers, and they are stated to have practically adopted all his theories and geographical notions.

Later on we find that the Portugese travellers obtained a considerable amount of information regarding the geography of the interior of Africa. They appear to have had some knowledge of the existence of several large lakes in the centre of the continent, and in some of their early maps these lakes find a place.

It appears to have been known to the ancients that the Nile proper is formed of two principal branches, which join and form one river close to where the town of Khar-

toum (or its ruin) now stands; but beyond this, as we have seen, little authentic information has been handed down.

In the year 1770, Bruce gave his attention to the Blue Nile. He was enabled to locate the sources of that branch of the river among the mountains and highlands of Abyssinia, near Lake Dembea. In 1788, the African Association was founded, and in furtherance of its objects much information was obtained of the geography of the "Dark Continent." In 1827, M. Linant, a French traveller, passed up the White Nile to a considerable distance above its junction with the Blue Nile branch. About the year 1840 two Egyptian naval officers headed an expedition, fitted out by Mahommed Ali, the then ruler of Egypt; they forced their way through the terrible marshes to within 3° 4″ of the equator; but were, like the expedition of the Emperor Nero, at last obliged to turn back.

In 1831, the old African Association was merged into the Royal Geographical Society, and from then, right down to the present time, our knowledge of the Nile and its sources has been perfecting itself.

While resting on the plateau land above the south-west corner of the Albert Lake, on the 25th of May, 1888, Stanley's attention was called to a towering mountain height capped with snow, which, from where he stood, lay about fifty miles away to the south-east. Twelve months later on his homeward journey, after crossing the Semliki River, which he found flowing into the south end of the Albert Lake, Stanley found himself following a range of hills, the tops of which towering up some 19,000 feet high, were covered with perpetual snow. This melting under the action of a tropical sun, poured its volumes of water into the Semliki River at his feet, which in turn conveyed it

thence to the Albert Lake and onwards to swell the torrent of Father Nile.

Stanley writes: "Little did we imagine it, but the results of our journey from the Albert Nyanza to ——— where I turned away from the newly-discovered lake in 1876, established beyond a doubt that the snowy mountain, which bears the native name of Ruwenzori or Ruwenjura, is identical with what the ancients called 'Mountains of the Moon.'

"Note what Scheadeddin, an Arabian geographer of the Fifteenth Century writes: 'From the Mountains of the Moon the Egyptian Nile takes its rise. It cuts horizontally the equator in its course north. Many rivers come from this mountain and unite in a great lake. From this lake comes the Nile, the most beautiful and greatest of the rivers of all the earth.'"

THE NILE

ISAAC TAYLOR

AFTER a few days at Cairo—one of the most amusing and picturesque cities in the world—the Express Nile Service of Messrs. Cook brings the traveller in three days to Luxor, where he will find enough to occupy him for as many weeks. The first view from the river shows the appositeness of the epithet Hecatompylos, applied to Thebes by Homer. Huge cubical masses of masonry—not the gateways of the city, which was never walled, but the pylons and propylons of the numerous temples—are seen towering above the palms, and, separated from each other by miles of verdant plain, roughly indicate the limits of the ancient city.

At Luxor the Nile valley is about ten miles across. The escarpment of the desert plateau, which elsewhere forms a fringing cliff of nearly uniform elevation, here breaks into cone-shaped peaks rising to a height of seventeen hundred feet above the level plain, which in January is already waving with luxuriant crops—the barley coming into ear, the lentils and vetches in flower and the tall sugar-canes beginning to turn yellow. The plain is dotted with Arab villages, each raised above the level of the inundation on its *tell*, or mound of ancient *débris*, and embosomed in a grove of date-palms mingled with the quaint dom-palms characteristic of the Thebiad. Animal life is far more abundant than in Italy or France. We note the camels and buffaloes feeding everywhere, tethered in the fields; the

great soaring kites floating in the air; the graceful hoopoos, which take the place of our English thrushes; the white paddy-birds fishing on the sand-banks of the river; gay king-fishers, among them the fish-tiger pied in black and white; the sun-bird, a bee-eater clad in a brilliant coat of green and gold; the crested lark, the greater and lesser owl, as well as water-wagtails, pipits, chats and warblers, numerous swifts and swallows, with an occasional vulture, eagle, cormorant, pelican, or crane. The jackal is common; and the wolf, the hyena, and the fox are not unfrequently heard, but seldom seen.

The sunsets on the Nile, if not the finest in the world, are unique in character. This is probably due to the excessive dryness of the atmosphere, and to the haze of impalpable dust arising from the fine mud deposited by the inundation. As the sun descends, he leaves a pathway or glowing gold reflected from the smooth surface of the Nile. Any faint streaks of cloud in the west shine out as the tenderest and most translucent bars of rose; a lurid reflection of the sunset lights up the eastern sky; then half an hour after sunset a great dome of glow arises in the west, lemon, changing into the deepest orange, and slowly dying away into a crimson fringe on the horizon—the glassy mirror of the Nile gleaming like molten metal; and then, as the last hues of sunset fade, the zodiacal light, a huge milky cone, shoots up into the sky.

On moonless nights the stars shine out with a brilliancy unknown in our misty northern latitudes. About three in the morning the strange marvel of the Southern Cross rises for an hour or two, the lowest star of the four appearing through a fortunate depression in the chain of hills. When the moon is nearly full, the visitors sally out into the tem-

ples to enjoy in the clear, calm and balmy air the mystery of their dark recesses, enhanced by the brilliant illumination of the thickly clustered columns. It is a sight, once seen, never to be forgotten.

But the charm of Luxor does not consist mainly in its natural beauties, though these are not to be despised, but in its unrivalled historical interest. There is no other site of a great ancient city which takes you so far and so clearly back into the past. All the greater monuments of Thebes, all the chief tombs and temples, are older than the time of Moses; they bear in clearly readable cartouches on their sculptured walls the names of the great conquering kings of the eighteenth and nineteenth dynasties—Thotmes III., Amenhotep III., Seti I., and Rameses II.—who carried the victorious arms of Egypt to Ethiopia, Lybia, the Euphrates and the Orontes; the great wall-faces forming a picture-gallery of their exploits. More modern names on the temple-walls of Thebes are those of Shishak, who vanquished Rehoboam, and Tirhakah, the contemporary of Hezekiah. The earliest name yet found at Thebes is that of Usertasen, a king of the twelfth dynasty, who lived some forty-three centuries ago; the latest considerable additions were made by the Ptolemies, and the record finally closes with a cartouche in which we spell out the hieroglyphic name of the Emperor Tiberius. But practically the monumental history of Thebes has ended before that of ancient Rome begins. The arches of Titus and Constantine, the mausoleum of Hadrian, Trajan's Column, the Colosseum and the Catacombs—in short, all the great structures of pre-Christian Rome—date from a time when Thebes had begun to be forsaken, and the ruin of her temples had commenced. Even the oldest Roman monuments, the Cloaca Maxima,

the Agger, and the substructures of the Palatine belong to a period when the greater edifices of Thebes were hoary with the dust of centuries. When Herodotus, the father of European history, voyaged up the Nile to Thebes, at a time when the Greeks had not even heard of an obscure Italian town which bore the name of Rome, the great temples which he saw, the vocal Memnon which is the statue of Amenhotep III., and the buildings which he ascribed to a king he called Sesostris, already belonged to an antiquity as venerable as that which separates the Heptarchy and the Anglo-Saxon Kings from the reign of Queen Victoria.

Difficult as it is to realize the antiquity of these monuments, in many of which the chiselling is as sharp and the colouring as brilliant as if they had been executed only yesterday, it is still more difficult by any description to convey an impression of their vastness. The temples and tombs are scattered over a space of many square miles; single ruins cover an area of several acres; thousands of square yards of wall contain only the pictured story of a single campaign. For splendour and magnitude the group of temples at Karnak, about two miles from Luxor, forms the most magnificent ruin in the world.

THE DON

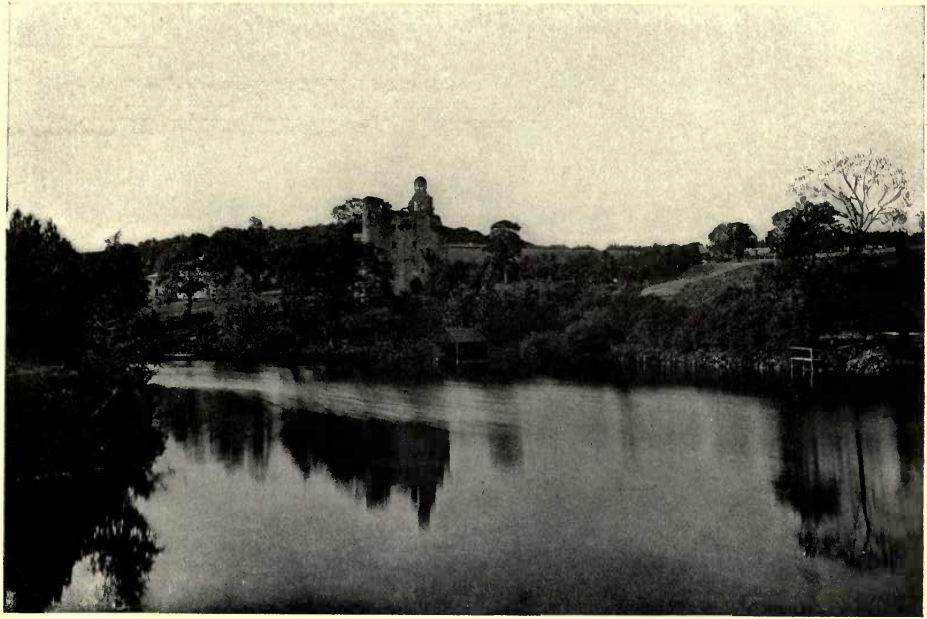
ÉLISÉE RÉCLUS

THE lands draining to the Sea of Azov, form no sharply defined region, with bold natural frontiers and distinct populations. The sources of the Don and its head-streams intermingle with those of the Volga and Dnieper —some—like the Medveditza, flowing even for some distance parallel with the Volga. As in the Dnieper and Dniester valleys, the " black lands " and bare steppes here also follow each other successively as we proceed southwards, while the population naturally diminishes in density in the same direction. The land is occupied in the north and east by the Great Russians, westwards by the Little Russians, in the south and in New Russia by colonies of every race and tongue, rendering this region a sort of common territory, where all the peoples of the empire except the Finns are represented. Owing to the great extent of the steppes, the population is somewhat less dense than in the Dnieper basin and Central Russia, but it is yearly and rapidly increasing.

The Don, the root of which is probably contained in its Greek name Tanaïs, is one of the great European rivers, if not in the volume of its waters, at least in the length of its course, with its windings some 1,335 miles altogether. Rising in a lakelet in the government of Tula, it flows first southwards to its junction with the nearly parallel Veronej, beyond which point it trends to the south-east, and even eastwards, as if extending to reach the Volga. After

being enlarged by the Khopor and Medveditza, it arrives within forty-five miles of that river, above which it has a mean elevation of 138 feet. Its banks, like those of the Volga, present the normal appearance, the right being raised and steep, while the left has already been levelled by the action of the water. Thus the Don flows, as it were, on a sort of terrace resembling a stair step, the right or western cliffs seemingly diverting it to the lower Volga bed. Nevertheless, before reaching that river, it makes a sharp bend first southwards, then south-westwards to the Sea of Azov.

From a commercial stand-point, it really continues the course of the Volga. Flowing to a sea which, through the Straits of Yeni-Kaleh, the Bosphorus, Dardanelles, and Gibraltar, communicates with the ocean, it has the immense advantage over the Volga of not losing itself in a land-locked basin. Hence most of the goods brought down the Volga are landed at the bend nearest the Don, and forwarded to that river. When besieging Astrakhan the Sultan Selim II. had already endeavoured to cut a canal between the two rivers, in order to transport his supplies to the Caspian. Peter the Great resumed the works, but the undertaking was abandoned, and until the middle of the present century the portage was crossed only by beasts of burden and wagons. But since 1861 the rivers have been connected by rail. Free from ice for about two hundred and forty days at its easternmost bend, the Don is sometimes so low and blocked with shoals that navigation becomes difficult even for flat-bottomed boats. During the two floods, at the melting of the ice in spring, and in the summer rains, its lower course rises eighteen to twenty feet above its normal level, overflowing its banks in several places for a distance of eighteen miles.



THE DON

The most important, although not the most extensive, coal-fields of Russia cover an area of about 10,000 square miles, chiefly in the southern part of the Donetz basin. Since 1865, nearly 650 beds have been found, mostly near the surface, the seams varying in thickness from one foot to twenty-four feet, and containing every description of combustible material, from the anthracite to the richest bituminous coal. The ravines here furrowing the land facilitate the study of the strata and the extraction of the mineral. Yet these valuable deposits were long neglected, and even during the Crimean war the Russians, deprived of their English supplies, were still without the necessary apparatus to avail themselves of these treasures.

Even the iron ores, which here also abound, were little utilized till that event, since when the extraction both of coal and iron has gone on continually increasing in the Donetz basin. In 1839, the yield scarcely exceeded 14,000 tons, whereas the output of the Grushova mines alone now amounts to 210,000 tons, and the total yield of the coal-pits exceeded 672,000 tons in 1872. The coal is now used by the local railways and steamers of the Don, Sea of Azov, and Euxine.

Already reduced in extent by the terrestrial revolutions which separated it from the Caspian, the Sea of Azov has been further diminished in historic times, although far less than might be supposed from the local traditions. No doubt Herodotus gives the Palus Mæotis an equal area to that of the Euxine. But as soon as the Greeks had visited and founded settlements on this inland sea they discovered how limited it was compared with the open sea. Nevertheless, fifteen hundred years ago it was certainly somewhat larger and deeper than at present, the alluvia of the Don

having gradually narrowed its basin and raised its bed. Its outline also has been completely changed, Strabo's description no longer answering to the actual form of its shores.

The town of Tanaïs, founded by the Greeks, at the very mouth of the Don, and which at the time of Ptolemy was already at some distance from the coast, has ceased to exist. But the architectural remains and inscriptions discovered by Leontiyev between Siniavka and the village of Nedoigovka, show that its site was about six miles from the old mouth of the Great Don, since changed to a dry bed. The course of the main stream has been deflected southwards, and here is the town of Azov, for a time the successor of Tanaïs in strategic and commercial importance. But where the flow is most abundant, there also the alluvium encroaches most rapidly, and the delta would increase even at a still more accelerated rate for the fierce east and north-east gales prevailing for a great part of the year. The sedimentary matter brought down, in the proportion of about one to 1,200 of fluid, amounts altogether to 230,160,000 cubic feet, causing a mean annual advance of nearly twenty-two feet.

The Gulf of Taganrog, about eighty miles long and forming the north-east extremity of the sea, may, on the whole, be regarded as a simple continuation of the Don, as regards both the character of its water and its current, and the windings of its navigable channel. This gulf, with a mean depth of from ten to twelve and nowhere exceeding twenty-four feet, seems to have diminished by nearly two feet since the first charts, dating from the time of Peter the Great. But a comparison of the soundings taken at various times is somewhat difficult, as the exact spots where they were taken and the kind of feet employed are some-

what doubtful, not to mention the state of the weather, and especially the direction of the winds during the operations. Under the influence of the winds the level of the sea may be temporarily raised or lowered at various points as much as ten or even sixteen or seventeen feet. The mean depth of the whole sea is about thirty-two feet, which, for an area of 14,217 square miles, would give an approximate volume of 13,000 billion cubic feet, or about four times that of Lake Geneva. The bed, composed, like the surrounding steppes, of argillaceous sands, unbroken anywhere by a single rock, is covered, at an extremely low rate of progress, with fresh strata, in which organic remains are mingled with the sandy detritus of the shores. If a portion of the sedimentary matter brought down by the Don were not carried out to the Euxine, the inner sea would be filled up in the space of 56,500 years.

THE COLUMBIA

J. BODDAM-WHETHAM

THE Mackenzie River flows through the plain, and is singularly beautiful. Great blocks of basalt come sheer down to the water's edge, and are divided naturally with great exactitude into huge segments. Their yellow and brown colours are reflected with wondrous effect on the surface of the stream. After a few most pleasant days, passed in the neighbourhood of Eugene City, I went on to Oregon City, and there remained to visit the Falls of the Willamette.

The river narrows near the town, and the water, rushing very swiftly, is precipitated down a fall of about fifty feet. The rocks on either side are of deep black basalt; and these huge walls, when viewed from the south, are extremely grand. It is only when they are seen from below that the mind is fully impressed with the magnificence of these falls. They have been worn into a horseshoe form by the action of the stream, and the river plunges into the depths below in great curves and sweeping currents. Masses of broken basalt show their heads amidst the rush of foaming waters, and altogether there is a noise, mist, and confusion enough to justify the Oregonians in their pride of their miniature Niagara. Formerly, these falls were the only obstruction to the free navigation of the river, but now it is overcome by the construction of locks, which have



THE COLUMBIA

been built in the most substantial manner. The scenery of the river is very picturesque and diversified, and a lovely panorama of hill and dale, water and forest is continually passing before the view.

Portland had lately been nearly destroyed by fire, consequently I had not a good opportunity of judging of the town. It is, however, beautifully situated on the Willamette River, and is surrounded by magnificent forests. There are some delightful drives through the woods, one especially to a place called the White House, through a succession of glades and glens full of splendid trees and sweet-scented shrubs, and with views of peculiar quiet loveliness.

The Willamette runs into the Columbia River about twelve miles below Portland; so, taking the morning steamer, I prepared to ascend that river, which for grandeur of scenery is not surpassed by any river (with the exception, perhaps, of the Fraser) on the American continent.

We started so early that a grey fog swallowed up everything, and the only objects visible were the paddle-boxes and the funnel.

We steamed very slowly and cautiously down the Willamette, and as we approached the junction of that river with the Columbia the mist lifted. As it slowly crept back to the shores and up the hills and away to the north, mountains, sky and river came out with intense brilliancy and colour under the rays of the rising sun.

Wonderful forests extended from the far distance down to the very edge of the river. Beeches, oaks, pines, and firs of enormous size formed a sombre background, against which the maple and ash flamed out in their early autumn tints. On the north, the four stately snow-crowned moun-

tains, Rainier, St. Helen's, Jefferson, and Adams lifted themselves, rose-flushed, high up in the heavens; the great river flowed rapidly and smoothly between mountain shores, from a mile to a mile and a quarter apart, and the bold rocky heights towered thousands of feet in the air.

The mountains line the river for miles. When occasionally a deep ravine opens you catch a glimpse of distant levels, bounded, in their turn, by the never-ending chain of mountains.

There is a rare combination, too, of beauty about these mountains; vegetation and great variety of colour heightening the picturesque effect of the huge masses of bold bare rock. Now and then the cliffs impeded the flow of the river, which then ran, disturbed and dangerous, between rocky islands and sand-bars. Often the agitated waters became gradually calm and formed long narrow lakes, without any apparent outlet, until a sudden turn showed a passage through the lofty walls into another link of the water-chain.

Sometimes a cataract of marvellous beauty came leaping down the rocks from a height of 200 and 300 feet.

The Multanomah Falls in particular are most beautiful, possessing both the swift resistless rush of the downpour of water and that broken picturesque outline which is the principal charm of a fall.

Castle Rock, a huge boulder with basaltic columns like those of Staffa, stands out grandly and alone from a feathery mass of cotton-wood, whose golden splendour rivals in beauty that of the spreading dark green boughs of the pines, whilst the contrast of colour heightens the effect of each brilliant hue.

On the crest of the rock a fringe of pine trees, growing

out of the bare stone and dwarfed to insignificance, shows the vast height of this rifted dome.

And now we are approaching Cape Horn, whose ramparts rise sheer and straight, like a columnar wall, 800 feet high.

This majestic portal forms a worthy entrance to the cascades. Fierce, seething rapids extend for six miles up the river, and the track of the "portage" runs near the water's edge for the entire distance. The river is narrowed here by lofty heights of trap rock, and the bed itself is nothing but sharp gigantic rocks, sometimes hidden by the water and sometimes forming small islands, between which the foaming torrent rushes with tremendous uproar.

Near where the "portage" begins, a relic of Indian warfare, in the shape of an old block-house, stands under the fir-trees.

A small party of white men held a very large body of Indians at bay for several days in 1856; and as the provisions ran short, a grand attack was made on the red men, who were totally routed with great slaughter.

The scene in this gorge is wild in the extreme. Passing Rooster Rock, the mountain-sides approach each other, and the river flows faster and fiercer; the pillared walls rise sometimes to a height of nearly 3,000 feet, and the wind roaring through the ravine beats up huge waves and adds to the wild grandeur of the view. Whenever the mountains recede to the south, Mount Hood fills the horizon. Rising 14,000 feet, its snow-covered head shines out magnificently against the blue sky, with unvarying grandeur and a strangely attractive form.

Soon we pass an Indian burial-ground called Caffin Rock, a more desolate slope, covered with rude monuments of rock and circular heaps of piled grey stones.

Dalles City, where we now arrive, ranks as the second place of importance in Oregon. It takes its name from the "dales" or rough flag-stones, which impede the river, making narrow crooked channels, and thereby causing another "portage" for a distance of fifteen miles. Above the town the scene changes; the cliffs disappear, and from splendid forests and mountains we pass into a region of sand and desert. One tall pillar of red rock, overlooking the sandy waste, stands up forlorn and battered, as if it were the last fragment of a giant peak; and numbers of birds hovering over it seem to regard it as their special observatory.

Hot white sand is everywhere, and the wind scatters it about in a most uncomfortable manner, covering the track and half-stifling you in its blinding showers. The river scenery is very fine all along this passage, the Dalles being a succession of rapids, falls, and eddying currents.

Although it was late in the season hundreds of salmon were still ascending, and on the flat shore-rocks were several Indian lodges; their occupants busily engaged in spearing and catching the fish.

Their usual mode of catching salmon is by means of nets fastened to long handles. They erect wooden scaffolds by the riverside among the rocks, and there await the arrival of the fish—scooping up thirty or forty per hour. They are also very skilful at spearing them; rarely missing a fair mark.

At one of the falls we saw a most treacherous contrivance. A large tree with all its branches lopped off had been brought to the edge of the river and there fastened, with its smaller end overhanging the foaming fall. A large willow basket, about ten feet deep and over twenty feet in circumference,

was suspended at the end. The salmon in its efforts to leap the fall would tumble in the basket, and an Indian seated in it would then knock the fish on the head with a club and throw it on shore.

This mode requires relays of men, as they soon get almost drowned by the quantity of spray and water. Very often, between two and three hundred salmon are caught in a day in this manner. We saw about twenty, averaging in weight from five to twenty pounds, caught in the hour during which we watched the process. But the hook-nosed salmon—coarse, nasty fish—were the most abundant. They always appear in the autumn, and are found everywhere. The salmon are in their greatest perfection in the Columbia River towards the end of June. The best variety is called the "chinook," and weighs from twenty to forty pounds. This species is generally accompanied in its ascent by a smaller variety, weighing on an average about ten pounds, and which is also extremely good eating. Gradually as the salmon go higher and higher up the river, their flesh changes from a bright red to a paler colour until it becomes quite white. There are such enormous quantities of them that they can be easily jerked on shore with a stick, and they actually jostle each other out of the water. It is estimated that over 500,000 salmon were taken out of the Columbia River during the year 1872. There is a perfectly true story of a traveller who, when riding, had to cross a stream running from the Cascade Mountains, at a spot where the fish were toiling up in thousands; and so quickly were they packed as to impede the progress of the horse, which became so frightened as almost to unseat his rider.

When the salmon are caught, the squaws cure them by

splitting them and drying the pieces upon wickerwork scaffoldings. Afterwards they smoke them over fires of fir branches. The wanton destruction and waste of these fish is terrible. In the season the Indians will only take the fish in the highest condition, and those that do not satisfy their fastidious tastes are thrown back mutilated and dying into the water. Even when they have killed sufficient to last them for years, they still go to the falls and catch and spear all they can, leaving the beautiful silvery salmon to rot on the stones. Salmon ought certainly to have "Excelsior" for a motto. Always moving higher and higher, they are never content, but continue the ascent of the river as far as possible. They go on till they drop, or become so weak and torn from rubbing against the rocks and against one another, that they are pushed into shallows by the stronger ones and die from want of water. Out of the hosts that ascend the rivers, it is generally supposed that a very small proportion indeed ever find their way back to the sea.

Just below the Great Salmon Falls the whole volume of the stream rushes through a channel hardly one hundred and fifty feet in width. At the falls themselves the river is nearly a mile across, and pours over a rocky wall stretching from shore to shore and about twenty feet high. It is fascinating in the extreme to watch the determined creatures as they shoot up the rapids with wonderful agility. They care neither for the seething torrent nor for the deep still pools, and with a rush—and with clenched teeth, perhaps—they dart up like a silver arrow, and defying rock and fall, are at length safe in the smooth haven above.

THE PO

GEORGE G. CHISHOLM

THE northern plain of Italy, whose area is estimated at about 16,450 square miles, or about half that of Scotland, is a geographical unit of the most unmistakable kind. It is, indeed, made up of many river basins, but these are all of one character and without marked lines of delimitation. By far the greater part of the area belongs to the basin of the Po, and the rivers that do not belong to that basin present a general parallelism to the tributaries of the Po. The general slope of the plain is that indicated by the course of its main river, from west to east, but there is also a slope from north to south, and another from south to north, determining the general direction of at least the upper portions of the numerous affluents descending from the Alps and the Apennines. But before reaching the main stream, these affluents are affected in their general direction by the general easterly slope of the plain; that is to say, their course changes more or less to south-easterly (Dora Baltea, Sesia, Ticino, Adda, Oglio, Mincio), or north-easterly (Tanaro, Scrivia, Trebbia, Taro, Secchia, Panaro), and the farthest east they are the larger is the proportion of the entire course deflected in this manner. In the most easterly portion of the plain, lying west of the Adriatic, so marked is this effect that the rivers (Adige, Brenta, Piave, Livenza) are carried to the sea before reaching the Po. North of the Adriatic the slope and the general direction

of the rivers (Tagliamento, Stella, Cormor) become wholly southerly.

Since ancient times the Po has been recognized as rising to the height of 6,400 feet in the marshy valley of Piano del Re at the foot of Monte Viso, the ancient Vesulus, and after a course of only twenty-one miles and a fall of 5,250 feet, it enters the plain at the bridge of Revello, where its middle course may be said to commence. Fed by the "aged snows" of the Alps, and by the heavy rains of the Alps and Apennines, it is already at Turin, where it receives from the west the Dora Riparia, a navigable stream with a width of 525 feet. At the mouth of the Ticino, the outlet of the Lago Maggiore, its lower course may be said to commence. Thence onwards it winds sluggishly across the great plains of

> Fruitful Lombardy,
> The pleasant garden of great Italy,

with a mean depth of about six and one-half to fifteen and one-half feet, and a fall not exceeding 0.3 : 1,000, so that the waters could hardly move onwards were it not for the impetus imparted by the numerous mountain torrents which it receives at an acute angle. At last, charged thick with sediment, it passes onwards through the mouths that intersect its muddy delta into the Adriatic.

In this part of its course, artificial embankments have been found necessary to protect the surrounding country from inundation, and from Cremona onwards these dykes, in part of unknown antiquity, are continuous. After receiving the Mincio, the last tributary on the north, the Po assumes a south-easterly direction, which in ancient times and during the Middle Ages down to about 1150, it main-



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tained to its mouths, passing Ferrara on the south, and then dividing into two main arms, the Po di Volano to the north, and the Po di Primaro to the south of the Valli di Comacchio. But about that date, it is said, the people of Ficarolo cut the dyke on the north side at Stellata, and thus gave rise to a new mouth, known first as the Po di Venezia, now as the Po della Maestra, by which the entire volume of the river now runs eastwards, till it breaks up into several small branches at the delta. Since then the arm of the Po between Stulata and Ferrara has become silted up. Since 1577 the Panaro which formerly entered this arm at Ferrara has gradually moved its mouth backwards till it enters the main stream just below Stellata. The Po di Volano, which in the Second Century B. C. was the most accessible mouth for shipping and afterwards the main mouth, has now become wholly detached from the Po, and merely serves as a drainage canal for the surrounding marshes, while the Po di Primaro has been utilized since 1770 as the mouth for the regulated Remo.

Long before the historic period, tens of thousands of years ago, but which geologists call recent, the great valley was an arm of the sea; for beneath the gravels and alluvia that form the soils of Piedmont and Lombardy, sea-shells of living species are found in well-known unconsolidated strata at no great depth. At this period the lakes of Como, Maggiore, and Garda may have been fiords, though much less deep than now. Later still, the Alpine valleys through which the affluents of the Po run were full to the brim with the huge old glaciers already referred to.

When we consider the vast size of the moraines shed from the ancient glaciers that fed the Po, it is evident that at all times, but especially during floods, vast havoc must

often have occurred among the masses of loose *débris*. Stones, sand, and mud, rolled along the bottom and borne on in suspension, must have been scattered across the plains by the swollen waters.

It will thus be easily understood how the vast plains that bound the Po and its tributaries were gradually formed by the constant annual increase of river gravels and finer alluvia, and how these sediments rose in height by the overflow of the waters, and steadily encroached upon the sea by the growth of the delta. The fact that the drainage line of the plain lies not in the middle but farther from the Alps than the Apennines, shows that in this process the loftier range on the north has contributed more than the lower one to the south. And this process, begun thousands of years before history began, has largely altered the face of the country within historic times, and is powerfully in action at the present day.

It has been estimated by Sir Archibald Geikie that the area drained by the Po is on an average being lowered one foot in 729 years, and a corresponding amount of sediment carried away by the river.

It is hard to get at the historical records of the river more than two thousand years ago, though we may form a good guess as to its earlier geological history. Within the historical period extensive lakes and marshes (some of them probably old sea lagoons) lay within its plains, since gradually filled with sediment by periodical floods. The great lines of dykes that have been erected to guard against those floods have introduced an element that modifies this process. The result has been that the alluvial flats on either side of the river outside the dykes have long received but little addition of surface sediment, and their level is nearly station-

ary. It thus happens that most of the sediment that in old times would have been spread by overflows across the land is now hurried along towards the Adriatic, there, with the help of the Adige, steadily to advance the far-spreading alluvial flats that form the delta of the two rivers. But the confined river, unable by annual floods to dispose of part of its sediment, just as the dykes were increased in height, gradually raised its bottom by the deposition there of a portion of the transported material, so that the risk of occasional floods is again renewed. All these dangers have been increased by the wanton destruction of the forests of the Alps and Apennines, for when the shelter of the wood is gone, the heavy rains of summer easily wash the soil from the slopes down into the rivers, and many an upland pasture has by this process been turned into bare rock. In this way it happens that during the historical period the quantity of detritus borne onwards by the Po has much increased; and whereas between the years 1200 and 1600 the delta advanced on an average only about twenty-five yards a year, from 1600 to 1800 the annual advance has been more than seventy-five yards. Between 1823 and 1893 the deposits at the Po di Maestra and the Po di Goro advanced on an average 260 feet yearly, those of the Po di Tolle 315 feet, and those of the Po della Gnocca 110 feet. The area of the Po delta has increased within that time by twenty and one-half square miles, and that of the whole coast from 44° 20′ to the Austrian frontier by 29.8 square miles. Besides the Po and some of its chief tributaries, the Adige is the only river in the northern plain of Italy of importance as a waterway; and even it, though navigable for vessels of considerable size, as high as Trent in the Tirol, where there is a depth of from thirteen to sixteen feet, is navigable

only with great difficulty in consequence of the great rapidity of its course. Boats can descend from Trent to Verona (fifty miles) in twenty-four hours, but for the ascent require from five to seven days. The country on the banks of this river is much subject to inundations, protection against which is afforded, as on the Po, by dykes, which begin about twelve miles below Verona.

THE MENAM

MRS. UNSWORTH

THE River Menam (mother of waters) is the central attraction of all life and trade; it is the great highway for traffic and the great cleanser and purifier of the cities; its tide sweeps out to the sea all the dirt and refuse accumulating therein; it is the universal bath for all the Siamese. The children paddle and play their games in it; it is the scene of their frolics in infancy, their means of livelihood in manhood, and to many of them their grave in death. At sunset, when work is suspended, there is a great splashing and plunging going on all along the river banks, everybody taking a bath or amusing themselves in the water. The river bar is a great trouble to navigators. The king will not have it dredged, as he, in his ignorance, thinks it a natural protection to his country, as only ships of a shallow draft can cross. Trading ships have to be built specially constructed for that purpose. No large man-of-war can cross, but the king did not take into consideration the small torpedo boats that can do so much mischief; recent events, however, must have opened his eyes. We cannot rush into Siam at railway speed; the ship must be lightened as much as possible, and we must wait until the tide is at its highest—it may be two hours, or it may be twenty-two—and even then the channel is so narrow that if we go a little to the right or to the left we run aground. Many times there are two ships fast aground; once or

twice there have been four and five. Some have had to stay seven and eight days, and have every movable thing taken out before they could rise. Nothing can exceed the monotony of lying aground there; there is nothing to see, only in the distance some low-lying ground covered with a scrub, no sign of habitations, no cliffs or green hills rising out of the sea—nothing but water, water all around, and a glimpse of flat low-lying ground with wild shrubs on it.

After crossing this vexatious river bar, we proceed up the river eight miles with nothing to see but low banks until we come to the forts at Paknam. The river banks are very low, and fringed at the water's edge with palms and huge tree ferns; the mango and tamarind trees hang over and the banyan tree, with its branches hanging down and taking root again, makes quite an entanglement of roots and branches. At night these trees are lit up with thousands of fire flies; on a dark night they glisten and sparkle like the firmament. But in the morning the river is alive with buyers and sellers. We very soon come to a market lying in the river—all kinds of Eastern fruits and vegetables and crockeryware are piled up on floating rafts, the sellers sitting cross-legged beside their wares, and the buyers rushing about in small canoes propelled with one oar.

If the officers in charge of steamships like to be mischievous and go full speed, leaving a big swell in their track, they have the fun of seeing the floating stalls swaying up and down, banging against one another fruit and vegetables, rolling off into the water, with the stall-holders shouting and plunging into the river to save their wares!

We then come to more floating houses and houses on piles. Europeans find the advantage of living on the river to be that they get more breeze and fewer mosquitoes; so



THE MENAM

here and there, among the floating mat-shed erections, we see a neat painted wooden house on piles; it has to be approached by a boat, and you enter up a staircase on to a wide verandah. The sitting-rooms and bedrooms all open out of this verandah. No windows, no fireplaces are needed in this country—very strange un-home-like residences they are to any one coming fresh from England, yet they are suitable for the climate.

Here and there amongst the palm trees, and under wide-spreading tamarind trees we see white-washed temples, with fantastically-shaped gilded roofs; they look very picturesque amongst the trees; they have a style of architecture peculiar to the country, which is more prominent in the shape of the roof, which is a sloping Gothic roof, with all the corners branching out and turning up; one roof is surmounted with another smaller, and then a smaller one still. These buildings give quite a character to the country and are very numerous. It makes Siamese architecture quite distinctive from that of other countries.

As we get to the city of Bangkok, the sides of the river are lined with timber and saw-mills and rice-mills, with tall chimneys, and black smoke oozing out. This is European enterprise; they quite spoil the scenic effect on the river, but not any more than the mean, dirty bamboo huts that line the riversides. The Siamese have no medium respectability; it is all either gorgeously gilded palaces, and fantastically-adorned temples, or filthy-looking huts. A great many of the shopkeepers have their shops right on the river. Some of them are neatly arranged, with a platform in front, on which you land from your boat. All the family are lounging about this platform, the wife carrying

on her domestic duties, washing up the cooking utensils by dipping them into the river; the clothes (what few they wear) go through the same process; and the children, naked, are sporting about this narrow platform, or sitting on the edge with their feet in the water.

It is very convenient for a shopkeeper who wishes to change his place of business; if he thinks there is a more desirable and more frequented spot, he just unmoors his floating shop and has it towed to the place he wants, without disarranging his wares.

Branching off from the river are innumerable canals, or creeks—the Siamese call them klongs—the banks of which are lined with houses and shops; they make a canal where we would make a road or a street. Up some of these klongs there are pretty views, especially at sunset. Graceful ferns and palms, bamboo trees, with their branches dipping into the water and reflected therein, and between the branches the sloping roof of some house or temple is visible. But many of these klongs or canals, in the most frequented part of the city, are the reverse of pretty. They are just like a large open sewer running down to the river, full of filthy garbage. When the tide is low there are the black slime, the naked children playing in it, and the dirty huts on rickety piles leaning forward as if they wanted to slide down into the mud; sometimes a dead body comes floating down, and plenty of dead animals.

It is very lively on the river in the city. Here are ocean-going steamers and sailing vessels moored amid-stream, or tied up to the various wharves, whilst an endless variety of native craft are darting about—narrow boats, like canoes, propelled with one oarsman, hawking fruit and betel; pretty little house boats, fashioned something like the Venetian

gondolas, with four, six or more rowers, standing up, dressed in bright uniforms, according to the rank of the family they belong to; the rice boats from far up the country, of very peculiar construction, flat-bottomed, to go through shallow water, and wide bulging out sides, roofed over like houses. In the rainy season, when the river is full, the large teak-wood rafts about 1,000 feet long, come floating down, with huts for the steersman built on them. Small steam launches and ferries, running up and down from various places, all combine to make the river scene pretty and interesting. One enthusiastic newspaper correspondent pronounced Bangkok to be the Venice of the East. It may resemble Venice in the amount of water traffic, but it would require a great stretch of imagination, and the help of some glorifying and transfiguring tints from the setting sun, before we could allow the comparison; but no doubt it bears the same relation to the East, where filth and squalor predominate, as Venice bears to the refined and cultured Europe.

There are a few well-kept houses of business and private residences bordering the river, but not many, and these in no way resemble the marble palaces of European Venice. The general aspect of the river banks is dirty disorder—rotten piles, with untidy-looking floating houses, mat-sheds, and bamboo huts, reaching up to the King's palace. The palace walls enclose many buildings, offices, temples, private residences, gardens, and residences for the sacred white elephants. The attractive part of these buildings and the great ornamentation are in the roofs, which are very gorgeous. Some have tall pointed pinnacles, all gilded; some are covered with a fantastic pattern in porcelain, with little gilded peaks, which look dazzling in

the sun. Viewed from a distance these buildings realize all that has been written in glowing terms of Eastern palaces, but near to the charm is not so vivid, as there is much tawdriness about them. Whilst remaining on the river the filth and refuse are not so prominent; the tide sweeps all away. But leave the river, and take to the woods. Oh! the offensive sights and smells that greet one's eyes and nose—offal and waste of every description thrown in front of the houses in the public streets. But nature is kind and very luxurious here; in a short time these heaps of rubbish are covered with a growth of grass and creeping plants. The principal shops are like those on the river—one large room open to the street, no doors or windows, the family living there, and the domestic arrangements mixed up with the business of selling.

Bangkok is a modern city. It is not more than 250 years old. It has risen to importance through the ever-increasing exportation of rice and timber. It is not purely Siamese, being a mixture of all Eastern nations, the Chinese being very largely represented; and the European influence is very prominent. The rice-mills for cleaning the rice and the saw-mills are all fitted up with modern machinery and are the outcome of European enterprise. There is a fine naval dockyard entirely managed by English engineers, and the regular lines of steamers running here constantly are all British. I must just mention that fifty years ago the Siamese had a fine fleet of sailing vessels, built in Bangkok of teak-wood; but the steamers have taken away their trade and that industry has died out. The ship-building yards are quite deserted and silent now.

But if we wish to see a real Siamese city, we must leave

Bangkok and go to Ayuthia, the old capital, before Bangkok was thought of.

It is sixty miles farther up the river. The scenery going up is monotonous—no variety at all; it is a flat country. In the months of October and November it is all under water; the river rises and floods the country for miles, so we can understand the reason for living in floating houses and on piles. But how can any one describe Ayuthia? It is so different from any other city in the world; and entirely Siamese.

The inhabitants live principally on the river in small houses of bamboo, roofed with Atap palm leaves. In some parts there is only a narrow passage for a small boat, the river is so crowded up with their houses. The trade seems to be buying and selling, and the principal things sold rice and fruit, with a few very simple cooking utensils. There is an old palace here which illustrates how much richer the kings must have grown with the increase of trade.

In the Siamese court there are several very interesting ceremonies, probably unlike anything belonging to any other country, a pageantry peculiar to Siam, and of great magnificence.

One of the principal of these is a royal cremation. Then there is a royal hair-cutting. This is an occasion for very great rejoicing. When a boy attains the age of fourteen or fifteen, his head is shaved, and then he enters the priesthood. When it is one of the royal family, or the Crown Prince, then not many other courts can exceed such a magnificent and gorgeous festival. The ceremony lasts for a week—a continued succession of religious rites, with processions and feasts. One of these is the sacred bath in the river, where the priests dip the young prince.

Another elaborate spectacle is when the king, attended by all his nobles, visits every great temple. This takes some weeks to accomplish, is an annual event, and is another series of grand processions. It is a water procession, and the barges which are kept and only used on this occasion are most sumptuous. They are richly carved and gilded, with silken awnings. They are long, narrow boats about 100 feet long, rowed by over 150 oarsmen with gilded oars. The whole procession is a scene of barbaric splendour, and recalls the stories of Aladdin and his Wonderful Lamp.

THE MERRIMACK

HENRY D. THOREAU

WE were thus entering the state of New Hampshire on the bosom of the flood formed by the tribute of its innumerable valleys. The river was the only key which could unlock its maze, presenting its hills and valleys, its lakes and streams, in their natural order and position. The Merrimack, or sturgeon river, is formed by the confluence of the Pemigewasset, which rises near the notch of the White Mountains, and the Winnipiseogee, which drains the lake of the same name, signifying "The smile of the Great Spirit." From their junction it runs south seventy-eight miles to Massachusetts, and thence east thirty-five miles to the sea. I have traced its stream from where it bubbles out of rocks of the White Mountains above the clouds, to where it is lost amid the salt billows of the ocean on Plum Island Beach. It was already the water of Squam and Newfound Lake and Winnipiseogee, and White Mountain snow dissolved, on which we were floating, and Smith's and Baker's and Mad Rivers, and Nashua and Souhegan and Piscataquong, and Suncook and Soucook and Contoocook, mingled in incalculable proportions, still fluid, yellowish, restless all, with an ancient, ineradicable inclination to the sea.

So it flows by Lowell and Haverhill, at which last place it first suffers a sea change, and a few masts betray the vicinity of the ocean. Between the towns of Amesbury and New-

bury it is a broad, commercial river, from a third to half a mile in width, no longer skirted with yellow and crumbling banks, but backed by high green hills and pastures, with frequent white beaches on which fishermen draw up their nets. I have passed down this portion of the river in a steamboat, and it was a pleasant sight to watch from its deck the fishermen dragging their seines on the distant shore, as in pictures of a foreign strand. At intervals you may meet with a schooner laden with lumber, standing up to Haverhill, or else lying at anchor or aground, waiting for wind or tide, until, at last, you glide under the famous Chain Bridge, and are landed at Newburyport. From the steeples of Newburyport you may review this river stretching far up into the country, with many a white sail glancing over it like an island sea, and behold, as one wrote who was born on its head-waters, "Down out at its mouth, the dark inky main blending with the blue above, Plum Island, its sand ridges scalloping along the horizon like the sea-serpent, and the distant outline broken by many a tall ship, leaning, *still*, against the sky."

Rising at an equal height with the Connecticut, the Merrimack reaches the sea by a course only half as long, and hence has no leisure to form broad and fertile meadows, like the former, but is hurried along rapids, and down numerous falls, without long delay. The banks are generally steep and high, with a narrow interval reaching back to the hills, which is only rarely or partially overflown at present, and is much valued by the farmers. Between Chelmsford and Concord, in New Hampshire, it varies from twenty to seventy-five rods in many places, owing to the trees having been cut down, and the consequent wasting away of its banks. The influence of the Pawtucket Dam is felt as far



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THE MERRIMACK

as Cromwell's Falls, and many think that the banks are being abraded and the river filled up again by this cause. Like all our rivers, it is liable to freshets, and the Pemigewasset has been known to rise twenty-five feet in a few hours. It is navigable to vessels of burden about twenty miles; for canal-boats, by means of locks, as far as Concord in New Hampshire, about seventy-five miles from its mouth; and for smaller boats to Plymouth, one hundred and thirteen miles. A small steamboat once plied between Lowell and Nashua, before the railroad was built, and one now runs from Newburyport to Haverhill.

Unfitted to some extent for the purposes of commerce by the sand-bar at its mouth, see how this river was devoted to the service of manufactures. Issuing from the iron regions of Franconia, and flowing through still uncut forests, by inexhaustible ledges of granite, with Squam, and Winnipiseogee, and Newfound, and Massabesic Lakes for its mill-ponds, it falls over a succession of natural dams, where it has been offering its *privileges* in vain for ages, until at last the Yankee race came to *improve* them. Standing at its mouth, look up its sparkling stream to its source,—a silver cascade which falls all the way from the White Mountains to the sea,—and behold a city of each successive plateau, a busy colony of human beavers around every fall. Not to mention Newburyport and Haverhill, see Lawrence, and Lowell, and Nashua, and Manchester, and Concord, gleaming one above the other. When at length it has escaped from under the last of the factories, it has a level and unmolested passage to the sea, a mere *waste water*, as it were, bearing little with it but its fame; its pleasant course revealed by the morning fog which hangs over it, and the sails of the few small vessels which transact the commerce

of Haverhill and Newburyport. But its real vessels are railroad cars, and its true and main stream, flowing by an iron channel farther south, may be traced by a long line of vapour amid the hills, which no morning wind ever disperses to where it empties into the sea at Boston. This river was at length discovered by the white man "trending up into the land," he knew not how far, possibly an inlet to the South Sea. Its valley, as far as the Winnipiseogee, was surveyed in 1652. The first settlers of Massachusetts supposed that the Connecticut, in one part of its course ran north-west, "so near the great lake as the Indians do pass their canoes into it over-land." From which lake and the "hideous swamps" about it, as they supposed, came all the beaver that was traded between Virginia and Canada—and the Potomac was thought to come out of or from very near it. Afterwards the Connecticut came so near the course of the Merrimack that, with a little pains they expected to divert the current of the trade into the latter river, and its profits from their Dutch neighbours into their own pockets.

Unlike the Concord, the Merrimack is not a dead but a living stream, though it has less life within its waters and on its banks. It has a swift current, and, in this part of its course, a clayey bottom, almost no weeds, and comparatively few fishes. We looked down into its yellow water with the more curiosity, who were accustomed to the Nile-like blackness of the former river. Shad and alewives are taken here in their season, but salmon, though at one time more numerous than shad, are now more rare. Bass, also, are taken occasionally; but locks and dams have proved more or less destructive to the fisheries. The shad make their appearance early in May, at the same time with the blossoms of the pyrus, one of the most conspicuous early flow-

ers, which is for this reason called the shad-blossom. An insect called the shad-fly also appears at the same time, covering the houses and fences. We are told that "their greatest run is when the apple-trees are in full blossom. The old shad return in August; the young, three or four inches long, in September. These are very fond of flies." A rather picturesque and luxurious mode of fishing was formerly practised on the Connecticut, at Bellows Falls, where a large rock divides the stream. "On the steep sides of the island rock," says Belknap, "hang several arm-chairs, fastened to ladders, and secured by a counterpoise, in which fishermen sit to catch salmon and shad with dipping nets." The remains of Indian weirs, made of large stones, are still to be seen in the Winnipiseogee, one of the head-waters of this river.

It cannot but affect our philosophy favourably to be reminded of these shoals of migratory fishes, of salmon, shad, alewives, marsh-bankers, and others, which penetrate up the innumerable rivers of our coast in the spring, even to the interior lakes, their scales gleaming in the sun; and again, of the fry which in still greater numbers wend their way downwards to the sea. "And is it not pretty sport," wrote Captain John Smith, who was on this coast as early as 1614, "to pull up twopence, sixpence, and twelvepence, as fast as you can haul and veer a line?"—And what sport doth yield a more pleasing content, and less hurt or charge, than angling with a hook, and crossing the sweet air from isle to isle, over the silent streams of a calm sea.

THE YEN-E-SAY

HENRY SEEBOHM

WE left London on Thursday, the 1st of March, at 8:25 P. M., and reached Nishni Novgorod on Saturday, the 9th inst., at 10 A. M., having travelled by rail a distance of 2,400 miles. We stopped three days in St. Petersburg to present our letters of introduction and to pay some other visits. At Nishni we bought a sledge, and travelled over the snow 3,240 English miles, employing for this purpose about a thousand horses, eighteen dogs, and forty reindeer. We left Nishni on the evening of the 10th of March, and travelled day and night in a generally easterly direction, stopping a couple of days at Tyu-main, and a day at Omsk, and reached Kras-no-yarsk on the morning of the 2d of April, soon after crossing the meridian of Calcutta. We rested a day in Kras-no-yarsk, and sledged thence nearly due north, spending four days in Yen-e-saisk and three days in Toor-o-kansk.

The Yen-e-say is said to be the third largest river in the world, being only exceeded in size by the Amazon and the Mississippi. The principal stream rises in the mountains of Central Mongolia, enters Siberia near the famous town of Kyakh-ta, on the Chinese frontier, and flowing through Lake By-kal, passes Eer-kutsk (Irkutsk) the capital of Siberia, under the name of the An-go-ra or Vairkh-nya, Tun-goosk, and enters the smaller stream, whose name it subsequently bears, a few miles south of Yen-e-saisk. Up

to this point its length may be roughly estimated at 2,000 miles, and judging from the time it takes to sledge across the river at Yen-e-saisk, its width must exceed an English mile. Following the windings of the river from the latter town to the Arctic Circle, the road is calculated as a journey of 800 miles, during which the waters are augmented by two important tributaries, the Pod-kah-min-a-Tun-goosk and the Nizh-ni-Tun-goosk, which increase the width of the river to more than three English miles. On the Arctic Circle it receives an important tributary, the Koo-ray-i-ka, about a mile wide, and, somewhat more circuitously than appears on our maps, travels to the islands of the delta, a distance possibly slightly over-estimated, during which the average width may be about four miles. The delta and lagoon of the Yen-e-say are about 400 miles in length, and must average twenty miles in width; making the total length of the river about 4,000 miles.

Throughout the whole extent of the river, from Yen-e-saisk, in latitude 58° to Gol-chee-ka in latitude 71½°, the banks are generally steep and lofty, from sixty to one hundred feet above the water-level, and so far as I could learn, comparatively little land is covered by the summer floods. The villages on the banks are from twenty to thirty versts (fifteen to twenty miles) apart, and are of course built upon high ground. As we sledged down the river, we had always a heavy climb up to the port stations; and in descending again into the bed of the river, it sometimes almost made our hearts jump into our mouths to look down the precipice, which our horses took at a gallop, with half-a-dozen villagers hanging on the sledge to prevent an upset, a feat they performed so cleverly, that although many a peasant got a roll in the snow, we always escaped without any seri-

ous accident. We found a good supply of horses as far as Too-ro-kansk. The second stage from this town we travelled by dogs, and completed the rest of the journey by reindeer. Soon after leaving Yen-e-saisk agriculture practically ceases. A few cows graze on the meadows near the villages, and hay is cut for their use during winter, but the villagers are too busy fishing during the short summer to till the land.

The banks of the Yen-e-say are clothed with magnificent forests up to the Arctic Circle, but northwards the trees rapidly diminish in size, and disappear altogether soon after leaving Doo-din-ka, in latitude 69½°. These forests are principally pine of various species. We reached the Koo-ray-i-ka on the 23d of April, and found the crew of the *Thames* in excellent health.

The winter quarters chosen by Captain Wiggins were very picturesque. Standing at the door of the peasant's house on the brow of the hill, we looked down on to the "crow's nest" of the *Thames*. To the left the Koo-ray-i-ka, a mile wide, stretched away some four or five miles, until a sudden bend concealed it from view; whilst to the right the eye wandered across the snow-fields of the Yen-e-say, and by the help of a binocular the little village of Koo-ray-i-ka might be discerned about four miles off, on the opposite bank of the great river. The land was undulating rather than hilly, and everywhere covered with forest, the trees reaching frequently two, and in some rare instances three feet in diameter. The depth of the snow varied from four to six feet; and travelling without snow-shoes, except on the hard-trodden roads, was of course utterly impossible.

When we arrived at the ship, we found that it was still winter, and were told that there had not been a sign of rain

since last autumn. April went by and May came in, but still there was no sign of summer, except the arrival of some of the earliest migratory birds. We generally had a cloudless sky; and the sun was often burning hot. On the 9th, 10th, and 11th of May we had rain for the first time, and the prospects of summer looked a little more hopeful. The rest of May, however, was more dreary and wintry than ever, alternations of hard frosts and driving snow-storms; but the river was slowly rising, and outside the thick centre ice was a strip of thin, newly-frozen ice. There was, however, little or no change in the appearance of the snow. Up to the end of May the forces of winter had gallantly withstood the fiercest attacks of the sun, baffled at all points, and entered into an alliance with the south wind, and a combined attack was made upon the winter forces. The battle raged for fourteen days, the battle of the Yen-e-say, the great event of the year in this cold country, and certainly the most stupendous display of the powers of nature that it has ever been my lot to witness. On the morning of the 1st of June the pressure underneath the ice caused a large field, about a mile long and a third of a mile wide, opposite the lower angle of junction of the Koo-ray-i-ka and the Yen-e-say, to break away. About half the mass found a passage down the strip of newly-formed thin ice, leaving open water behind it. The other half rushed headlong on to the steep banks of the river. The result of the collision was a little range of mountains, fifty or sixty feet high, and picturesque in the extreme. Huge blocks of ice, six feet thick and twenty feet long, in many places, were standing perpendicular, whilst others were crushed up into fragments like broken glass; and in many other places the ice was piled up in layers one over the other. The real ice on the

river did not appear to have been thicker than two or three feet, clear as a glass, and blue as an Italian sky. Upon the top of this was about four feet of white ice. This was as hard as a rock, and had, no doubt, been caused by the flooding of the snow when the waters of the river had risen, and its subsequent freezing. Upon the top of the white ice was eighteen inches of clean snow, which had evidently never been flooded. When we turned into our berths in the evening the captain thought it best to institute an anchor-watch. We had scarcely been asleep an hour before the watch called us up with the intelligence that the river was rising rapidly, and that the ice was beginning to crack. We immediately dressed and went on deck. We saw at once that the Yen-e-say was rising so rapidly that it was beginning to flow up its tributaries. A strong current was setting up the Koo-ray-i-ka, and small floes were detaching themselves from the main body of the ice and were running up the open water. By and by the whole body of the Koo-ray-i-ka broke up and began to move up stream. Some of the floes struck the ship some very ugly blows on the stern, doing considerable damage to the rudder; but open water was beyond, and we were soon out of the press of ice, with, we hoped, no irretrievable injury. All this time we had been getting steam up as fast as possible, to be ready for any emergency. It was hopeless to attempt to enter the creek opposite which we were moored, and which was now only just beginning to fill with water; but on the other side of the river, across only a mile of open water, was a haven of perfect safety. But, alas! when the ice had passed us, before we could get up sufficient steam, the river suddenly fell three feet, and left aground by the stern, and immovable as a rock. Nor was

it possible, with a swift current running up the river at the rate of four knots an hour, to swing the ship round so as to secure the rudder against any further attacks of the ice. Half a mile ahead of us, as we looked down the river, was the edge of the Yen-e-say ice. The river was rising again; but before the stern was afloat we discovered, to our dismay, that another large field of ice had broken up; and the Koo-ray-i-ka was soon full of ice again. In the course of the night the whole of the ice of Yen-e-say, as far as we could see, broke up with a tremendous crash, and a dense mass of ice-floes, pack-ice, and icebergs backed up the Koo-ray-i-ka, and with irresistible force drove the Koo-ray-i-ka ice before it. When it reached the ship, we had but one alternative, to slip the anchor and let her drive with the ice. For about a mile we had an exciting ride, pitching and rolling as the floes of ice squeezed the ship, and tried to lift her bodily out of the water, or crawl up her sides like a snake. The rudder was soon broken to pieces, and finally carried away. Some of the sailors jumped on to the ice and scrambled ashore, whilst others began to throw overboard their goods and chattels. Away we went up the Koo-ray-i-ka, the ice rolling and tumbling and squeezing along side, huge lumps climbing one on the top of another, until we were finally jammed in a slight bay, along with a lot of pack-ice. Early in the morning the stream slackened, the river fell some five or six feet, and the ice stood still. The ship went through the terrible ordeal bravely. She made no water, and there was no evidence of injury beyond the loss of the rudder. In the evening the ship was lying amidst huge hummocks of ice, almost high and dry. The Koo-ray-i-ka, and right across the Yen-e-say, and southwards as far as the eye could reach

was one immense field of pack-ice, white, black, brown, blue, green, piled in wild confusion as close as it could be jammed. Northwards the Yen-e-say was not yet broken up. All this time the weather was warm and foggy, with very little wind, and occasional slight rain. There was a perfect Babel of birds as an accompaniment to the crashing of the ice. Gulls, geese, and swans were flying about in all directions; and their wild cries vied with the still wilder screams of the divers. Flocks of red polls and shore larks, and bramblings and wagtails in pairs, arrived, and added to the interest of the scene. On the 2d of June there was little or no movement in the ice until midnight, when an enormous pressure from above came on somewhat suddenly, and broke up the great field of ice to the north of the Koo-ray-i-ka, but not to a sufficient extent to relieve the whole of the pressure. The water in the Koo-ray-i-ka rose rapidly. The immense field of pack-ice began to move up stream at the rate of five or six knots an hour. The poor ship was knocked and bumped along the rocky shore, and a stream of water began to flow into the hold. At nine o'clock all hands left her, and stood upon the snow on the bank, expecting her instant destruction. The stream rose and fell during the day; but the leak, which was apparently caused by the twisting of the stern-post, choked up. Late in the evening an opportunity occurred of a few hours' open water, during which steam was got up; and by the help of a couple of ropes ashore, the rudderless ship was steered into the little creek opposite to which she had wintered, and run ashore. Here the leak was afterwards repaired and a new rudder made. We calculated that about 50,000 acres of ice passed the ship up stream during these two days; and we afterwards learned that

most of this ice got away some miles up the Koo-ray-i-ka, where the banks are low, and was lost in the forest.

The battle of the Yen-e-say raged for about a fortnight. The sun was generally burning hot in the daytime; but every night there was more or less frost. The ice came down the Yen-e-say at various spuds. Sometimes we could see gigantic masses of pack-ice, estimated at twenty to thirty feet in height, driven down the river at an incredible pace, not less than twenty miles an hour. In the Koo-ray-i-ka the scene was constantly changing. The river rose and fell. Sometimes the pack-ice and floes were jammed so tight together that it looked as if one might scramble across the river without difficulty. At other times there was a good deal of open water, and the icebergs "calved" as they went along with much commotion and splashing, that could be heard half a mile off. Underlayers of the iceberg ground; and after the velocity of the enormous mass has caused it to pass on, the pieces left behind rise to the surface, like a whale coming up to breathe. Some of these "calves" must come up from a considerable depth. They rise up out of the water with a great splash, and rock about for some time before they settle down to their floating level. At last the final march past of the beaten winter-forces in this great fourteen days' battle took place and for seven days more the rag, tag, and bob-tail of the great Arctic army come straggling down—warm and weather-beaten little icebergs, dirty ice-floes that looked like mud-banks floating down, and straggling pack-ice in the last stages of consumption. The total rise of the river was upwards of seventy feet.

The moment that the snow disappeared vegetation sprang up as if by magic, and the birds made preparations for breeding. As we passed through Yen-e-saisk I bought a

schooner of a ship-builder of the name of Boiling, a Heligolander. I christened it the *Ibis;* and on the 29th of June we left the Koo-ray-i-ka with this little craft in tow. Our progress down the river, however, was one catalogue of disasters, ending in our leaving the *Thames* on the 9th of July a hopeless wreck, lying high and dry on a sand-bank, in latitude 67°. As we sailed northwards in the *Ibis*, the forests became smaller and smaller, and disappeared altogether about latitude 70°. The highest point we reached was latitude 71½°, where I sold the *Ibis* to the captain of a Russian schooner, which had been totally wrecked during the break-up of the ice.

On the 23rd of July I left Gol-chee-ka in the last Russian steamer up the river; and reached Yen-e-saisk on the 14th of August. After a few days' delay I drove across country to Tomsk, stopping a day or two in Kras-no-yarsk. In Tomsk I found an excellent iron steamer, in which I sailed down the river Tom into the Obb, down which we steamed to its junction with the Eer-tish, up which we proceeded until we entered the Tob-ol, and afterwards steamed up the Too-ra to Tyu-main, a distance by water of 2,200 miles. From the Tyu-main I drove through Ekatereenburg across the Urals to Perm, where I took my passage on board the *Sam-o-lot*, or self-flyer, down the Kama, and up the Volga, to Nishni Novgorod.

THE YARROW

JOHN MACWHIRTER

YARROW and its vale form one of the high places of the earth. In this age of cheap trips it is easy to get there, and perhaps you don't think much of it as you rattle through on the coach. There is many a Highland scene incomparably grander. After all

> "What's Yarrow, but a river bare,
> That glides the dark hills under?
> There are a thousand such elsewhere,
> As worthy of your wonder."

A word of dry description must commence. The Yarrow Water is in Yarrow and Selkirk parishes of the country of Selkirk. It rises in St. Mary's Loch, it courses therefrom to its junction with Ettrick Water fourteen and a half miles, when the latter gives its name to the united currents. They are soon lost in the Tweed. Beyond St. Mary's Loch, and separated from it by a narrow strip of land, is the Loch o' the Lowes (or Lochs). It is about two miles in length, and is fed by the Yarrow, which rises some two miles higher up, though it is usually taken as beginning in the large lake. In the lower reach the banks are wooded; farther up the hills are bare, soft, rounded, the stream is clear and swift-flowing, with a musical note on its large and small stones; there is no growth of sedge or underwood, but the fresh green grass stretches up the slope till it is lost in the heather. Between the hills are glens down which wind greater or smaller tributaries to the Yarrow. Each

has its legend and its ruin. Dim, romantic, enticing, these glens stretch away into the mysterious mountain solitude. You begin your excursion from Selkirk, which is on Ettrick Water, ten miles down stream from its junction with the Yarrow, and two places soon take your attention, Carterhaugh and Philiphaugh. There is a farm "toun," as they name a steading in the north, that is called Carterhaugh; but what is meant here is a charming piece of greensward and wood, that lies almost encircled by the two streams at and near their meeting place. A very Faeryland! and here is laid the scene of the faery ballad of "The Young Tamlane." The song is very old; it was well known in 1549, as we learn from a chance mention in a work of the period. It is a delicious poem, pure phantasy; a very Mid-summer Night's Dream, scarcely of the earth at all, far less dealing with historical incident. The forgotten poet, lest he should be all in the air, makes the young Tamlane son to Randolph, Earl Murray, and Fair Janet, daughter to Dunbar, Earl March, but this is only because these were the noblest names in Scotland, and he chooses Carterhaugh for his stage; as like as not he lived somewhere on the Yarrow, and the stream sang in his ears as he built the song. Tamlane is nine when his uncle sends for him "to hunt and hawk and ride," and on the way —

> "There came a wind out o' the north,
> A sharp wind and a snell,
> And a dead sleep came over me,
> And frae my horse I fell.
> The Queen of the Fairies she was there,
> And took me to herself."

On the left bank of the Yarrow, just across from Carter-



THE YARROW

haugh, is Philiphaugh. It is a large space of level ground, and here the fortunes of the great Montrose and his Highland army came to hopeless smash in the early morning of 13th September, 1645. Montrose had won six victories in the Highlands, had been appointed Viceroy of Scotland, and full of ill-placed confidence was preparing an invasion of England. He spent the previous evening at ease in Selkirk (they still show you the house) and was writing despatches to the king, when he heard the sound of firing. He galloped to the field and found everything practically over! David Leslie had been seeking him far and near for some time, had found the camp and invaded it in a mist. The Royalists were scattered; Montrose—no one ever counted cowardice among his vices—made a desperate effort to retrieve the fortune of the day, but all in vain. Finally he dashed through the opposing forces, galloped away up the Yarrow, then by a wild mountain path, right over Minchmoor, and drew not bridle till he dashed up to Traquair House, sixteen miles from the battle-field. A number of prisoners were taken. The common lowland Scot has still a certain contempt for the Highlander, whose appreciation in the modern world is due to literature; then he looked upon him as an outcast and outlaw, "a broken man," in the expressive phrase of an earlier day. The captives were shot in the court-yard of Newark Castle, and buried in a field still called Slain-mans-lee. Celtic troops are very brave, but unless mixed with the steadier Saxon, they don't seem reliable.

Still keeping on the left bank, follow the road by the riverside and as before you come to two places, each with an interest very different from the others. One is a ruined house, a poor enough building at the best. An inscription

tells you that Mungo Park (1771–1805) the African traveller, was born and lived here. He saw Scott a little before his last voyage, told how he dreaded leave-taking (he had been recently married!) and that he meant to leave for Edinburgh on some pretence or other and make his adieux from there. On Williamhope ridge the two parted.

"I stood and looked back, but he did not," says Scott. He had put his hand to the plough. Poor Mungo Park! his discoveries seem little now-a-days, yet to me, he is always the most attractive of African travellers, his life the most interesting, his end the most melancholy. One thinks how under the hot sun in those fearful swamps he must have often remembered the cool delicious green braes of his native Yarrow. But we turn our eyes to the opposite bank and scarce need be told that the castle we see, majestic, though in ruins, is "Newark's stately tower." 'Tis a great weather-beaten square keep, where Anna, relict of the ill-fated Duke of Monmouth, lived for some years of her widowed life. To her Scott's "Last Minstrel" sings his lay. But the place was already centuries old. It was once a hunting-seat of the Scots kings, when the whole region was the densely wooded Ettrick Forest, and here there was great sport with the wolf, the mountain bear, the wild-cat, and all sorts of other small and large deer. Some place-names still save the old memories, Oxcleugh, Durhame, Hartleap, Hindshope, and so forth.

After Yarrow hamlet the land is more desolate, the stream shrinks to a mountain burn, there are no more clumps of trees, and the hills creep in near the water's edge, and they are taller and steeper. You pass lofty Mount Benger, near where Hogg, the Ettrick Shepherd, who loved and sang of those sweet vales, had a farm.

Farther on the right bank is Altrive, where he afterwards lived, and where he died. Almost opposite, the Douglas Burn flows through a gloomy and solitary glen to Yarrow. Follow this burn and you come to the ruins of Blackhouse Tower. It was from here that Lord William and Lady Margaret fled at midnight from Lord Douglas and his seven sons. These were slain one by one, but it was only when her lover began to press roughly on her father that the lady interposed.

> "Oh hold your hand, Lord William, she said,
> For your strokes they are wondrous sair.
> True lovers I can get many a one,
> But a father I can never get mair."

An obvious if belated reflection! 'Twas of no avail, the father is left dead and dying, and the lady follows her knight ("For ye've left me nae other guide," she says somewhat bitterly). They light down at "yon wan water" and his "gude heart's bluid" dyes the stream, though he swears "'Tis naething but the shadow of my scarlet cloak." However, the lovers die that very night and are buried in St. Marie's Kirke, and "a bonny red rose" and a briar grew out of the grave and twined together to the admiration of all who saw, but to the great wrath of Black Douglas, who, a sworn foe to sentimentality,

> "Pull'd up the bonny briar
> And flang'd in St. Marie's Loch."

The wild path followed by the lovers over the hillside is still to be traced, the place of the combat is marked by seven stones; but again these are of an earlier date, and again it would be useless to criticise the creation of the fancy too curiously.

And now we are at St. Mary's Loch, a beautiful sheet of water three miles long and half a mile broad. At the head of the loch is a monument to the Ettrick Shepherd. Near the monument is St. Mary's Cottage, better known as "Tibbie Shiel's," and scene of many a gay carouse of Christopher North and his merry men, as you know very well if you have read the *Noctes Ambrosianæ*. The cottage is still kept by a relative of the original Tibbie, as a humble sort of an inn. If you are wise you will prefer it to the large new Rodona hotel not far off. It has a touch of the old times with its huge fireplace and box beds. It is something to hear the local anecdote, how one morning "after" Christopher or the shepherd, being more than ever consumed with the pangs of thirst, in a burst of wild desire, cried "Tibbie, bring ben the Loch." It is said that Scott was never farther than the door. Scott, Hogg, Wilson were, we all know, great writers, though to-day Wilson is but little read, Hogg popular through one or two lyrics, whilst Scott is more and more known with the years. But each of the three had an impressive and attractive personality—he is more than a writer, he is first of all a man. Superior in interest to monument and cottage is St. Mary's Kirk, which stands on a height on the left bank of the loch. One should say stood, for nothing of it is left. Here generations of martyrs and freebooters were carried, and the heroes and heroines of so many of the tales and ballads were laid to rest, but —

> "St. Mary's Loch lies slumbering still,
> But St. Mary's Kirk-bells lang dune ringing,
> There's naething now but the grave-stone hill,
> To tell o' a' their loud Psalm-singing."

They still bury there, though at rare and distant intervals. Hard by is Dryhope Tower. Here was born Mary Scott, the "Flower of Yarrow." The romance of the name caused this heroine to be incessantly be-rhymed through all the subsequent centuries, but we don't know much about her. She was married to Walter Scott of Harden, a gentleman widely and justly renowned for his skill in "lifting" other people's cattle. As a portion the bride's father agreed to "find his son-in-law in man's meat and horse's meat for a year and a day, five barons becoming bound that, on the expiry of that period, Harden should retire without compulsion." Not one of the parties to the contract could write. A daughter of the "Flower of Yarrow" was married to another freebooter called "Gilly wi' the gouden garters." The bride was to remain at her father's house for a year and a day, and in return Gilly contracted to hand over the plunder of the first harvest moon. By the way, there is rather a pretty though quite untrustworthy tradition of the origin of the ballads connected with the name of Mary Scott. In the spoils brought home by her husband from one of his forays, was a child. Him she took and reared. Of gentle nature, he delighted to hear of and celebrate in songs the tragedies and romances acted or repeated around him; and so he, "nameless as the race from whence he sprung, saved other names and left his own unsung." The Meggat Water is one of the many streams that fill the loch. On one of its tributaries called Henderland-burn is a ruined tower, and near it a large stone broken into three parts, on which you may still make out the inscription, "Here lyes Perys of Cockburne and his wyfe Marjory." Cockburne was in his day a noted freebooter, and secure in his tower defied all

attempts to bring him to justice. But James V. in his famous progress through the Border-land, heard of his proceedings, and came right over the hills and down upon Henderland, whose proprietor he found eating his dinner. It was his last meal; he was at once seized and strung up before his own door. His wife fled and concealed herself in a place called the Lady's seat, and when she recovered the silence of the glen told her that the invaders had departed, and she returned and buried her husband. One of the most pathetic of the old ballads is said to be her lament

> "But think na' ye my heart was sair,
> When I laid the moul' on his yellow hair;
> O think na' ye my heart was wae,
> When I turned about, awa' to gae."

By the way, gold was found in the glen here; probably a little might be extracted to-day; but then it wouldn't pay for the washing. Quite a different set of traditions deals with the Covenanting period. Far up in the solitary side glens were favourite meeting-places; here the saints came from far and near with Bible, and sword and gun, ready to offer up their lives if need may be, but quite determined to sell them as dearly as possible. Alas! the minstrels were not on their side, and no contemporary ballads tell the story of the dangers and deaths, though those were dramatic enough. In later times Hogg and Wilson did something to weave them into song and story. It was near the loch of the Lowes that Renwick preached his last sermon. "When he prayed that day few of his hearers' cheeks were dry." On the 17th February, 1688, "he glorified God in the grass-market," as the old phrase ran.

And now one can understand how Yarrow came to its

fame. Quieter, sweeter, softer than other vales, its green braes, its delicious streams attracted the old singers who preserved the memories of others' deeds. But why is this music sad? Well, most border ballads are little tragedies, the strongest emotions are the saddest, and such the singers preferred. And then one or two ballads gave a decided tone to the others. The "Dowie Dens," in fact, strikes the key-note of them all. William Hamilton, of Bangour, and John Logan have both told a story of love and death in excellent fashion in their poems on "The Braes of Yarrow." As for the rest, Scott is chiefly descriptive; Wordsworth, in spite of an occasional line or even verse of high excellence, is on the whole very poor; and Alan Ramsay is exceedingly bad.

THE MISSISSIPPI

ALEXANDER D. ANDERSON

IN the early days of European discoveries and rivalries in the Mississippi Valley its comprehensive river system played a prominent part on the stage of public affairs. The discovery of the river, in 1541, by De Soto and his Spanish troops, was about a century later followed by explorations by the French under the lead of Marquette, Joliet, La Salle and others, who entered the valley from the north. La Salle, during the years 1679–83, explored the river throughout its whole length, took possession of the great valley in the name of France, and called it Louisiana in honour of his King, Louis XIV. Then resulted grand schemes for developing the resources of the valley, which a French writer characterized as "the regions watered by the Mississippi, immense unknown virgin solitudes which the imagination filled with riches." One Crozat, in 1712, secured from the King a charter giving him almost imperial control of the commerce of the whole Mississippi Valley. There was at that date no European rival to dispute French domination, for the English of New England and the other Atlantic colonies had not extended their settlements westward across the Alleghanies, and the Spanish inhabitants of New Spain or Mexico had not pushed their conquest farther north than New Mexico. Crozat's trading privileges covered an area many times as large as all France, and as fertile as any on the face of the earth. But he was equal



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THE MISSISSIPPI

to the opportunity, and, failing in his efforts, soon surrendered the charter.

John Law, a Scotchman, at first a gambler, and subsequently a bold, visionary, but brilliant financier, succeeded Crozat in the privileges of this grand scheme, and secured from the successor of Louis XIV. a monoply of the trade and development of the French possessions in the valley. In order to carry out his wild enterprise he organized a colossal stock company, called "The Western Company," but more generally known in history as the "Mississippi Bubble." According to the historian Monette "it was vested with the exclusive privilege of the entire commerce of Louisiana and New France, and with authority to enforce its rights. It was authorized to monopolize the trade of all the colonies in the provinces, and of all the Indian tribes within the limits of that extensive region, even to the remotest source of every stream tributary in anywise to the Mississippi." So skilful and daring were his manipulations that he bewitched the French people with the fascinations of stock gambling. The excitement in Paris is thus described by Thiers:

"It was no longer the professional speculators and creditors of the Government who frequented the rue Quincampoix; all classes of society mingled there, cherishing the same illusions—noblemen famous on the field of battle, distinguished in the Government, churchmen, traders, quiet citizens, and servants whom their suddenly acquired fortune had filled with the hope of rivalling their masters."

The rue Quincampoix was called the Mississippi. The month of December was the time of the greatest infatuation. The shares ended by rising to eighteen and twenty thousand francs—thirty-six and forty times the first price.

At the price which they had attained, the six hundred thousand shares represented a capital of ten or twelve billions of francs.

But the bubble soon burst; and its explosion upset the finances of this whole kingdom. Some years later, in 1745, a French engineer named Deverges made a report to his Government in favour of improving the mouth of the Mississippi, and stated that the bars there existing were a serious injury to commerce.

But France met with too powerful rivalry in the valley, and in 1762 and 1763, after a supremacy of nearly a hundred years, was crowded out by the English from the Atlantic colonies and the Spaniards from the south-west, the Mississippi River forming the dividing line between the regions acquired by those two nations. The Spanish officials, for the purpose of promoting colonization, and to aid in establishing trading-posts on the Mississippi, Missouri, Arkansas, Red, and other rivers in the western half of the valley, granted to certain individuals, pioneers, and settlers, large tracts of land. They made little progress, however, in peopling their new territory.

But whatever progress was made under the successive supremacies of France and Spain, the Mississippi and its navigable tributaries supplied the only highways of communication and commerce.

In the year 1800, soon after Napoleon I. became the civil ruler of France, he sought to add to the commercial glory of his country by re-acquiring the territory resting upon the Mississippi which his predecessors had parted with in 1763.

To quote the language of a French historian: "The cession that France made of Louisiana to Spain in 1763

had been considered in all our maritime and commercial cities as impolitic and injurious to the interests of our navigation, as well as to the French West Indies, and it was very generally wished that an opportunity might occur of recovering that colony. One of the first cares of Bonaparte was to renew with the court of Madrid a negotiation on that subject."

He succeeded in these negotiations, and by secret treaty of St. Ildefonso, in 1800, French domination was once more established over the great river.

Two years later, the commerce of the river had grown to large proportions. Says Marbois, of that period: "No rivers of Europe are more frequented than the Mississippi and tributaries." A substantially correct idea of their patronage may be obtained from the record of the foreign commerce from the mouth of the Mississippi, for nearly all of the commodities collected there for export had first floated down the river.

Marbois well illustrates the intense indignation at this order on the part of the Western people by attributing to them the following language: "The Mississippi is ours by the law of nature; it belongs to us by our numbers, and by the labour which we have bestowed on those spots which before our arrival were desert and barren. Our innumerable rivers swell it and flow with it into the Gulf Sea. Its mouth is the only issue which nature has given to our waters, and we wish to use it for our vessels. No power in the world shall deprive us of this right."

Of Morales's order James Madison, then Secretary of State, wrote the official representative of the United States at the court of Spain:

"You are aware of the sensibility of our Western citi-

zens to such an occurrence. This sensibility is justified by the interest they have at stake. The Mississippi to them is everything. It is the Hudson, the Delaware, the Potomac, and all the navigable rivers of the Atlantic States formed into one stream."

At this time Thomas Jefferson was President, and in view of the uneasiness of the Western settlers, he hastened to send to France a special ambassador to negotiate for the purchase of the Louisiana Territory. The opportunity was a favourable one, for France was then in danger of a conflict with Great Britain. The latter country had become alarmed at and jealous of Bonaparte's commercial conquests, and he, apprehending war and fearing that he could not hold Louisiana, had about determined to do the next best thing —dispose of it to one of England's rivals.

Marbois, the historian of Louisiana, from whom we have above quoted, was chosen by Napoleon to represent France in the negotiations with the representative of the United States sent by Jefferson. His account of the cession—the consultation between Napoleon and his ministers—and of his remarks and motives, forms one of the most instructive and interesting chapters of modern history. Napoleon foreshadowed his action by the following remark to one of his counsellors:

"To emancipate nations from the commercial tyranny of England it is necessary to balance her influence by a maritime power that may one day become her rival; that power is the United States. The English aspire to dispose of all the riches of the world. I shall be useful to the whole universe if I can prevent their ruling America as they rule Asia."

In a subsequent conversation with two of his ministers,

on the 10th of April, 1803, on the subject of the proposed cession, he said in speaking of England: "They shall not have the Mississippi which they covet."

In accordance with this conclusion, on the 30th day of the same month, the sale was made to the United States. When informed that his instructions had been carried out and the treaty consummated, he remarked:

"This accession of territory strengthens forever the power of the United States, and I have just given to England a maritime rival that will sooner or later humble her pride."

Under the stimulating influence of American enterprise the commerce of the valley rapidly developed. In 1812 it entered upon a new era of progress by the introduction for the first time upon the waters of the Mississippi of steam transportation.

The river trade then grew from year to year, until the total domestic exports of its sole outlet at the sea-board—the port of New Orleans—had during the fiscal year 1855–56 reached the value of over $80,000,000. Its prestige was then eclipsed by railways, the first line reaching the Upper Mississippi in 1854, and the second the Lower Mississippi, at St. Louis in 1857. Says Poor:

"The line first opened in this state from Chicago to the Mississippi was the Chicago and Rock Island, completed in February, 1854. The completion of this road extended the railway system of the country to the Mississippi, up to this time the great route of commerce of the interior. This work, in connection with the numerous other lines since opened, has almost wholly diverted this commerce from what may be termed its natural to artificial channels, so that no considerable portion of it now flowed down the river to New Orleans."

The correctness of this assertion may be seen by reference to the statistics of the total domestic exports of New Orleans during the year ending June 30, 1879. They were $63,794,000 in value, or $16,000,000 less than in 1856, when the rivalry with railways began.

But since 1879 the river has entered upon a new and important era. The successful completion of the jetties by Capt. Jas. B. Eads inaugurated a new era of river commerce and regained for it some of its lost prestige.

Another step of great importance to the welfare of the Mississippi was taken about this time. The control of its improvement was transferred by Congress to a board of skilled engineers known as the Mississippi River Commission. The various conflicting theories of improvement which have for years past done much to defeat the grand consummation desired will now be adjusted in a scientific and business-like manner.

Again, the rapidly growing popular demand throughout the United States for more intimate commercial relations with Mexico and the several sister nations of Central and South America, which lie opposite the mouth of this great River System, is stimulating the long-neglected longitude trade and thereby creating a new demand for new transportation on the longitudinal water-ways which comprise the Mississippi and its tributaries.

The Mississippi and tributaries considered as a drainage system, extend nearly the whole length of the United States from Canada to the Gulf, and across more than half its width, or from the summit of the Rocky Mountains to that of the Alleghanies.

Steamers can now transport freight in unbroken bulk from St. Anthony's Falls to the Gulf of Mexico, a distance

of 2,161 miles, and from Pittsburg to Fort Benton, Mont., 4,333 miles. Lighter craft can ascend the Missouri to Great Falls, near where that river leaves the Rocky Mountains.

THE ZAMBESI

HENRY DRUMMOND

ZAMBESI, the most important river on the East Coast of Africa, and the fourth largest on the continent, drains during its course of about 1,200 miles an area of 600,000 square miles. Its head-streams, which have not yet been fully explored, are the Leeambye, or Iambaji, rising in Cazembe's country; the Lungebungo, which descends from the Mossamba Mountains; and the Leeba River, from the marshy Lake Dilolo (4,740 feet), situated between 10° and 12° south latitude and 22° and 23° east longitude. These three rivers, reinforced by the Nhengo, unite to form the upper Zambesi (Leeambye), which flows at first southwards and slightly eastwards through the Barotse valley, then turns prominently to the east near its junction with the Chobe (Chuando or Linianti), and passes over the Victoria Falls. Thence, as the middle reach of the Zambesi, the river sweeps north-east towards Zumbo and the Kebrabassa rapids above Tete, and finally forms the lower Zambesi, which curves southwards until it reaches the Indian Ocean at 18° 50′ south latitude. Fed chiefly from the highland country which stretches from Lake Nyassa to inner Angola, its chief tributaries are the Loăngwa and the Shiré, the last an important river draining out of Lake Nyassa, and which in the dry season contains probably as great a volume of water as the Zambesi, and is much more navigable. Except for an interruption of seventy miles at



THE ZAMBESI

the Murchison cataracts, the Shiré is open throughout its entire length to the lake.

On the whole the Zambesi has a gentle current, and flows through a succession of wide fertile valleys and richly wooded plains; but, owing to the terrace-like structure of the continent, the course of the river is interrupted from point to point by cataracts and rapids. These form serious, and in some cases insurmountable, hindrances to navigation. Those on the lower Zambesi begin with its delta. The bar here was long held to be impassable, except to vessels of the shallowest draught, but the difficulty was exaggerated partly through ignorance and partly in the interests of the Portuguese settlement of Quilimane, which, before the merits of the Kongone entrance were understood, had been already established on the Qua-qua River, sixty miles to the north. The Zambesi is now known to have four mouths, the Milambe to the west, the Kongone, the Leeabo, and the Timbwe. The best of these, the Kongone, has altered and the channel improved recently. There are at least eighteen feet of water on the bar at high water neap tides; and steamers drawing fifteen feet, and sailing vessels drawing three feet less, have no difficulty in entering. The deep water continues only a short distance, and, after Mazaro (sixty miles) is reached, where the river has already dwindled to the breadth of a mile, the channel is open in the dry season as far as Senna (120 miles from the mouth) for vessels drawing four and one-half feet. Up to this point navigation could only be successfully and continuously carried on by vessels of much lighter draught—stern-wheelers for preference with a draught of little more than eighteen inches. About ninety miles from Senna the river enters the Lupata gorge, the impetuous current contracting between

walls to a width of scarcely 200 yards. Passing Tete (240 miles from the mouth with a smooth course) the channel becomes dangerous at Kebrabassa, ninety miles further on. From the Kebrabassa rapids upwards, and past the Victoria Falls, there are occasional stretches of navigable water extending for considerable distances, while the upper Zambesi with its confluents and their tributaries forms a really fine and extensive waterway. Like the Nile, the Zambesi is visited by annual inundations, during which the whole country is flooded and many of the minor falls and rapids are then obliterated.

The chief physical feature of the Zambesi is the Mosi-oa-tunya ("smoke sounds there") or Victoria Falls, admitted to be one of the noblest waterfalls in the world. The cataract is bounded on three sides by ridges 300 or 400 feet high, and these, along with many islands dotted over the stream, are covered with sylvan vegetation. The falls, according to Livingstone, are caused by a stupendous crack or rent, with sharp and almost unbroken edges, stretching right across the river in the hard black basalt which here forms the bed. The cleft is 360 feet in sheer depth and close upon a mile in length. Into this chasm, or more than twice the depth of Niagara, the river rolls with a deafening roar, sending up vast columns of spray, which are visible for a distance of twenty miles. Unlike Niagara, the Mosi-oa-tunya does not terminate in an open gorge, the river immediately below the fall being blocked at eighty yards by the opposing side of the (supposed) cleft running parallel to the precipice which forms the waterfall. The only outlet is a narrow channel cut in this barrier at a point 1,170 yards from the western end of the chasm and some 600 from its eastern, and through this the Zambesi, now only

twenty or thirty yards wide, pours for 120 yards before emerging into the enormous zigzag trough which conducts the river past the basalt plateau.

The region drained by the Zambesi may be represented as a vast broken-edged plateau 3,000 or 4,000 feet high, composed in the remote interior of metamorphic beds and fringed with the igneous rocks of the Victoria Falls. At Shupanga, on the lower Zambesi, thin strata of grey and yellow sandstone, with an occasional band of limestone, crop out on the bed of the river in the dry season, and these persist beyond Tete, where they are associated with extensive seams of coal. Gold is also known to occur in several places.

The higher regions of the Zambesi have only been visited by one or two explorers; and the lower, though nominally in possession of the Portuguese since the beginning of the Sixteenth Century, are also comparatively little known. The Barotse valley, or valley of the upper Zambesi, is a vast pastoral plain, 3,300 feet above sea-level, about 189 miles in length and thirty to thirty-five broad. Though inundated in the rainy season, it is covered with villages and supports countless herds of cattle. The Luiwas who inhabit it are clothed with skins, work neatly in ivory, and live upon milk, maize, and sweet potatoes. In the neighbourhood of the falls the tsetse fly abounds; and the Batoka people who live there, and who are the only arboriculturists in the country, live upon the products of their gardens. Zumbo, on the north bank, and Chicova, opposite on the southern side (500 miles above the delta), were the farthest inland of the Portuguese East African settlements, and are well placed for commerce with the natives. Founded by Pereira, a native of Goa, these settlements were ultimately allowed to

go to ruins; but Zumbo has been recently reoccupied. The once celebrated gold mines of Parda Pemba are in the vicinity. The only other Portuguese settlements on the Zambesi are Tete and Senna. Tete, formerly a large and important place, now nearly in ruins, still possesses a fort and several good tiled stone and mud houses. Thither Portuguese goods, chiefly wines and provisions, are carried by means of canoes. The exports, which include ivory, gold dust, wheat, and ground-nuts, are limited owing to the difficulty of transport; but this difficulty is not insurmountable, for Tete has been twice visited by some small steam vessels. Senna, further down the river, a neglected and unhealthy village, has suffered much from political mismanagement, and has ceaseless troubles with the Landeens or Zulus, who own the southern bank of the river, and collect in force every year to exact a heavy tribute-money. The industrial possibilities of the lower Zambesi, and indeed of the whole river system, are enormous. India-rubber, indigo, archil, beeswax, and columbo root are plentiful, and oil-seeds and sugar-cane could be produced in sufficient quantity to supply the whole of Europe.

The Zambesi region was known to the mediæval geographers as the empire of Monomotapa, and the course of the river, as well as the position of Lakes N'gami and Nyassa, was filled in with a rude approximation to accuracy in the earlier maps. These were probably constructed from Arab information. The first European to visit the upper Zambesi was Livingstone in his exploration from Bechuanaland between 1851 and 1853. Two or three years later he descended the Zambesi to its mouth and in the course of this journey discovered the Victoria Falls. In 1859, accompanied by Dr. Kirk (now Sir John Kirk), Liv-

ingstone ascended the river as far as the falls, after tracing the course of its main tributary, the Shiré, and discovering Lake Nyassa. The mouths of the Zambesi were long claimed exclusively by the Portuguese, but in 1888 the British Government opened negotiations with Portugal to have the river declared free to all nations.

THE URUGUAY

ERNEST WILLIAM WHITE

THE River Uruguay, a health-giving stream impregnated with sarsaparilla, and the lesser of the two affluents which swell into the mighty La Plata, possesses charms for the traveller, denied to the greater, the Paraná, at least in the lower part of its course; the water is clearer, the range not so vast, the scenery more varied and picturesque, whilst the traces of industry are more patent and the difficulties and dangers of its navigation add a piquancy unknown to the sister waters.

As its shores were to me as yet an unknown region, I determined to spend a fortnight in becoming familiar with their beauties, so on the morning of the 25th of December, in the midst of a glorious summer season, a friend joined me in taking return tickets from Buenos Ayres to Concordia, Entre Rios, which at the then state of the tide, was the furthest point upwards that a steamer could reach.

During breakfast we pretty well lose sight of the Argentine coast and have nothing before us but a broad fresh-water ocean covered with innumerable blue-flowered camelotes, consisting chiefly of *Pontederia*, which spread their broad leaves as sails to speed them on their course; these nesine fragments descend the Paraná but are unknown on the bosom of the Uruguay. On our right side soon rises a long low ridge of sand indicating the Banda Oriental coast, terminating opposite the island of Martin Garcia, in cliffs

resembling those of loved Albion. Calm as the Thames at London bridge is all this mighty estuary; it is not always so however, but on this holy day of peace

> "The winds with wonder whist
> Smoothly the waters kissed!"

And it is only by sailing over it in the glare of daylight that any adequate impression of its vastness can be obtained. Whence comes all this overflowing tide? is a question readily answered by the rigid scientist, but with whose conclusions, the imagination rests not satisfied.

After leaving the outer roads of Buenos Ayres, but little shipping is met with, and the reflection immediately occurs, how different the case would be, were this magnificent water-highway in the hands of the Anglo-Saxon race. On finding ourselves nearly abreast of Martin Garcia, the Argentine coast magically arose under a strong mirage, the trees appearing suspended in the air and completely separated from the shore line; whilst a shoal several miles in extent threatening our port bow, indicated the necessity of hugging the island, if we would avoid the fate of a fine bark which lay rotting only a few yards off.

The navigation is extremely perilous especially at low water and yet but a few buoys are visible, an unaccountable omission, at least in times of peace. A boat containing the *comandante* sallies from the fort and we, in common with all other passing vessels, are obliged to lie to, in order to await its visit.

Martin Garcia, at once the Norfolk island and Gibraltar of the River Plate, is the key of the common entrance to both the Paraná and Uruguay, as their bifurcation occurs farther north; and the channel, whose character may be

surmised from its name "*Hell channel*," passes within easy reach of the guns of this sentinel of the rivers, which has been strongly fortified by the Argentine government. A barren looking granitic tract, whence are quarried the *adoquines* (paving stones) for the streets of the metropolis, with low sandy shores, rising in the interior to the height of two hundred feet and bristling with permanent fortifications and earthworks, it presents a standing menace to dispute with intruders entrance by water into the heart of the republic. On entering the River Uruguay, which has an embouchure of about thirteen miles, both banks are visible and very striking differences they present; the right or Entre-Riano shore is well-wooded and clothed with vegetation, whilst the left or Montevidean lies in all its naked barrenness. Further on, the Banda Oriental coast alters its character, being fringed with islands and less sandy; then jut out into the river a succession of bold bluffs, almost all with a bloody history, covered with a scanty verdure emerging from sand, presenting a close general resemblance to the southern shore of the Isle of Wight; and these promontories are usually dotted with *estancias*. Casting our eyes across the broad waters, we notice a change there likewise; long reefs of sand exchange verdure for sterility, and it is a remarkable circumstance throughout our whole progress up the Uruguay, that the two shores bear continually opposite or, so to speak, complimentary characters, not only physically and politically but botanically; when one is bold or fertile, the other is low or sterile. We now pass several wrecks, attesting the difficulties which beset our watery path.

Rounding a point, we suddenly come upon what looks uncommonly like an English fishing-village, with its craft quietly reposing in a snug bay; the church and cemetery

topping our eminence, whilst the residence of the lord of the manor caps another, and learn that this is *Nueva Palmira*. The Oriental flag here boards us for the first time and the Easterns got rid of, the Saturno is again let loose on her orbit to hug the Montevidean coast, which now descends again to long reaches of low flat sands, with a broader stream, forming extensive sabulous, and in some cases well-wooded islands, which stretch leagues upon leagues along this left bank. A glorious moon, within two days of the full, succeeded one of the angriest yet finest of sunsets, and her rays, falling full upon the capacious bosom of the placid river transformed it into a lake of burnished silver. At about 9 P. M. we arrive off the mouth of the Rio Negro (Black River), called thus because the decaying sarsaparilla roots, with which its banks are lined, impregnate and discolour the waters and at the same time render them so highly medicinal as to attract great numbers of bathers to its shores.

As the rising sun's disk was cut in twain by the horizon, I started upon deck to view the landscape. We were coursing through numberless islands, with a scenery on both banks exactly like that of the Suffolk river Orwell, but with an atmosphere O! how different! ours was as the balm of Eden, theirs, the nipping dry Eoic. The breadth of the stream is here about half a mile, and the moderately elevated banks are clothed with vivid green to the water's edge; then as the river narrows again, we traverse a beautiful Ægean, whose innumerable islets are thickly wooded, principally with Espinillo (*Acacia cavenia*), Tala (Celtis Sellowiana), the willow of Humboldt, Ceibo (*Erythrina cristagalli*) and Laurel; but which, to my utter astonishment, presented scarcely any trace of animal life;

hardly a dozen butterflies, a chimango or two, and a few weary-looking butcher-birds were its sole visible representatives. About 6 A. M., whilst passing through low jungle we sight our first city on the Argentine side, Concepcion del Uruguay, the capital of the province of Entre Rios; and entering a deep channel scarce a hundred yards broad, flanked by a double row of poplars, emerge in front of the splendid *Saladero*[1] of Santa Candida.

Ten miles above Paysandú, the river expands into a broad belt clear as a mirror, in which the sky, distant foliage and hills are brilliantly reflected, the air changes and bathed in tropical fragrance and balminess, the intensely vivid verdure springs up magically around us.

At the junction of the Queguay, an oriental affluent with the main stream, which at this point has a breadth of about half a mile are planted several *Saladeros*, apparently hard at work; but whether the palms are scared by the scent of blood or refuse to witness the daily holocaust, certain it is that they here suddenly vanish from the scene. Twenty miles above this rises a veritable *Tarpeia* in the shape of a very lofty, bold, perpendicular-faced mass jutting into the river from the Uruguay coast, and which, with a refinement of cruelty and a just appreciation of history, was actually used by a general in one of the periodic revolutions to which this unhappy country is so subject, wherefrom to hurl his prisoners. Two picturesque islands, circular, rising abruptly out of the water, apparently exactly equal in size and shape, and hence styled "*Las dos hermanas*" (the two sisters), stand as advanced guards to this precipitous promontory, and by their intensely green verdure to the river's edge and smooth mathematical uniformity, offer a pleasing

[1] Slaughter-house.

contrast to the rugged, battered and blackened face of the cliff.

We hold our breath as with a quick turn and dart through the seething flood, our clever steersman pilots us through dangers greater than ever Sylla and Charybdis offered, and leaves us at leisure to survey the prosperous cattle farms, which, on both banks, now line our approach to Concordia.

At length about 5 P. M., after a passage of thirty-one hours and at a distance of 300 miles from Buenos Ayres, we sight the town of Concordia on the right bank, and at almost the same moment Salto, on the left, which, rising tier upon tier, very much resembles Bath; these two occupy almost the same relative positions as Buda and Pesth on the Danube.

From its junction with the Paraná, the Uruguay is navigable at all states of the tide as far as Concordia, but some miles above that city occur the Falls of Salto-grande and numerous rapids which render it unnavigable to steamers from below, except in times of extraordinary freshets between which an interval of years sometimes elapses; whilst above these, although still sown with rapids, the river is navigable but to vessels of smaller draught.

From the marvellous accounts I had listened to, I expected to behold in these Falls another Niagara, but great was my disappointment on viewing them for the first time, for although very picturesque, they struck me as completely wanting in the grandeur with which my imagination had clothed them. Extending for about a mile longitudinally, they consist on the northern limit of a transverse bar of boulders which cause a perpendicular descent of about twenty-five feet; then a succession of rugged rocks, sometimes of very fantastic shape, pile Pelion on Ossa, amongst

which the river surges and eddies. The reef spreads completely across the river, a distance of about a quarter of a mile, so that in some states of the tide, it is possible to pass on foot from Entre Rios to the Banda Oriental, at all times a difficult, nay dangerous, undertaking. An island formed of massive boulders occupies the centre, on which a few dwarfed trees struggle for an aquatic existence. Here are found splendid agates, blocks of rock crystal, amethysts and other precious stones; and there lie naked on the blistering rocks, those rusty and silent mementos of Garibaldi's unsuccessful expedition in 1840 when, to cross the rapids, he was obliged to throw overboard ten eighteen-pounder iron guns.

By contemplating the scene, however, it grows in magnitude and sublimity.

THE TWEED

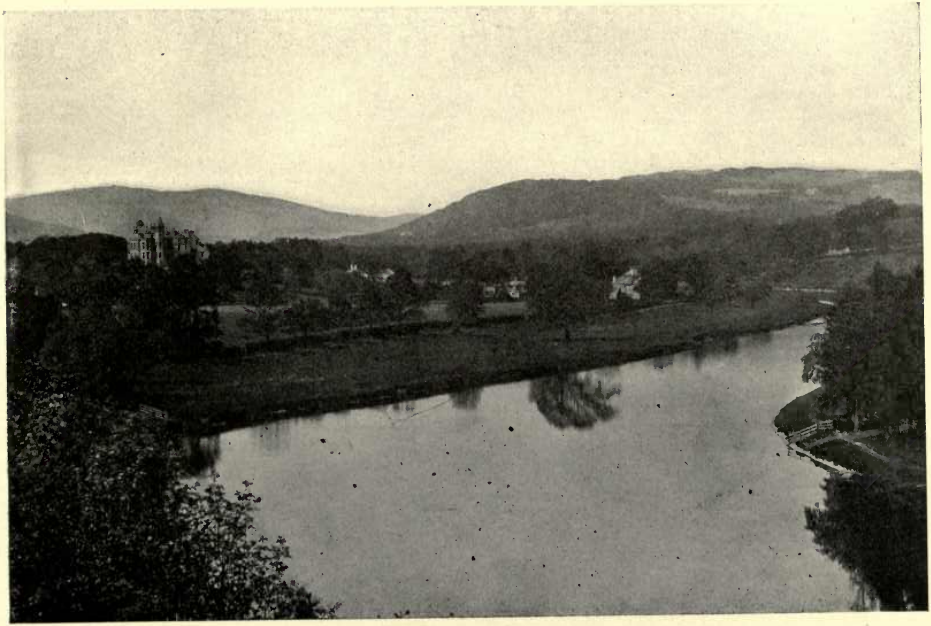
SIR THOMAS DICK LAUDER

THE great valley which affords a course for the Tweed, when taken in conjunction with those minor branch valleys which give passage to its various tributaries, may be called the great Scoto-Arcadian district of pastoral poetry and song. Who could enumerate the many offerings which have been made to the rural muses in this happy country? for where there are poetry and song, happiness must be presupposed, otherwise neither the one nor the other could have birth.

During those barbarous times, when border raids were in continual activity, and when no one on either side of the marches, or debatable land, could lay down his head to sleep at night, without the chance of having to stand at his defense, or perhaps to mount and ride ere morning, the valleys of the Tweed and its tributaries must have witnessed many strange and stirring events and cruel slaughters. To defend themselves from these predatory incursions the Scottish monarchs erected strong castles along the lower part of the course of the Tweed, and the chain of these places of strength was carried upwards, quite to the source of the streams by the various land owners. These last were either Towers or Peels—these different names being given, rather to distinguish the structures as to their magnitude and importance, than from any great difference of plan—the Tower possessing greater accommodations and being much the larger and more impregnable in strength of the two.

These strongholds, being intended for the general advantage and preservation of all the inhabitants of the valley, were built alternately on both sides of the river, and in a continued series, so as to have a view one of another; so that a fire kindled on the top of any one of them, was immediately responded to, in the same way, by all the others in succession; the smoke giving the signal by day and the flame by night—thus spreading the alarm through a whole country of seventy miles in extent, in the provincial phrase, from "Berwick to the Bield,"—and to a breadth of not less than fifty miles carrying alarm into the uppermost parts of every tributary glen.

Availing ourselves of the quaint language of Dr. Pennecuick, we now beg to inform our readers that "The famous Tweed hath its first spring or fountain nearly a mile to the east of the place where the shire of Peebles marches and borders with the stewartry of Annandale—that is Tweed's Cross, so called from a cross which stood and was erected there in the time of Popery, as was ordinary, in all the eminent places of public roads in the kingdom before our Reformation. Both Annan and Clyde have their first rise from the same height, about half a mile from one another, where Clyde runneth west, Annan to the south, and Tweed to the east." There is some little exaggeration, however, in the old Doctor here—for there is, in reality, no branch of Clyde within two miles of Tweed's Cross, or Errickstane Brae. Tweed's Well is not very far from the great road; and the site of Tweed's Cross is 1,632 feet above the level of the sea. "Tweed runneth for the most part with a soft, yet trotting stream, towards the north-east, the whole length of the country, in several meanders, passing first through the Paroch of Tweeds-moor, the place of its birth, then



THE TWEED

running eastwards, it watereth the parishes of Glenholm, Drumelzear, Broughton, Dawick, Stobo, Lyne, Mannor, Peebles, Traquair, Innerleithen, and from thence in its course to the March at Galehope-burn, where, leaving Tweeddale, it beginneth to water the forest on both sides, a little above Elibank."

The Banks of the Tweed abound in simple rural charms as you proceed downwards from Elibank Tower, and they partake of that peaceful pastoral character which its green sided hills bestow upon it.

We now come to that part of the course of the Tweed, extending from its junction with the united rivers Ettrick and Yarrow to the mouth of Gala Water. The estate of Abbotsford makes up a large part of the whole. The part of it that borders the Tweed consists of a large and very beautiful flat haugh, around the margin of which the river flows gently and clearly over its beds of sparkling pebbles.

The angling from Gala Water foot to Leader foot is all excellent, both for salmon and trout, when the river is in proper condition; and then the beauty and interest of all the surrounding features of nature and the silent grandeur of the holy pile of ruin are such that even the unsuccessful angler must find pleasure in wandering by the river-side, quite enough to counterbalance the disappointment of empty baskets.

Sir Walter Scott says:—

> "If thou would'st view fair Melrose aright,
> Go visit it by the pale moonlight;
> For the gay beams of lightsome day
> Gild but to flout the ruins grey.
> When the broken arches are black in night,
> And each shafted oriel glimmers white;

When the cold lights' uncertain shower
Streams on the ruined central tower;
When buttress and buttress alternately,
Seemed framed of ebon and ivory;
When silver edges the imagery,
And the scrolls that teach thee to live and die;
When the distant Tweed is heard to rave
And the howlet to hoot o'er the dead man's grave;
Then go—but go alone the while—
Then view St. David's ruined pile;
And, home returning, soothly swear
Was never scene so sad and fair."

Before leaving this section of the Tweed, we must not forget to mention that the Knights Templars had a house and establishment on the east side of the village of Newstead. It was called the Red Abbey. Before concluding this part of our subject, it appears to us to be very important, if not essential, to call our readers' especial attention to the singular promontory of Old Melrose on the right bank of the river. It is a high bare head, around which the river runs in such a way as to convert it into a peninsula. Here it was that the first religious settlement was made. This monastery was supposed to have been founded by Columbus or by Aidan, probably about the end of the Sixth Century. It would appear that it was built of oak wood, thatched with reeds, the neck of land being enclosed with a stone wall. It is supposed to have been burned by the Danes. The name given to it was decidedly Celtic and quite descriptive of its situation—Maol-Ros, signifying Bare Promontory—and from this the more recent Abbey and the whole of the more modern parish of Melrose have derived their name.

We now come to a very beautiful, nay, perhaps, we

ought to say the most beautiful part of the Tweed, where it meanders considerably, as it takes its general course in a bold sweep round the parish of Merton. On its north side the ground rises to a very considerable height in cultivated and wooded hills. From several parts of the road that winds over it, most magnificent views are enjoyed up the vale of the Tweed including Melrose and the Eildon Hills; and then at the same time, these rising grounds and the southern banks, which are likewise covered with timber, give the richest effect of river scenery to the immediate environs of the stream.

We scarcely know a place anywhere which is so thoroughly embowered in grand timber as Dryburgh Abbey. The most beautiful fragment of the ruin is that which is called Saint Mary's Aisle, which formed the south aisle of the transept; and let it not be approached save with that holy awe which is inspired by the recollection of the illustrious dead! for here repose the ashes of the immortal Sir Walter Scott!

Below Dryburgh Lord Polwarth's property of Merton begins and runs for about two miles down the Tweed. As you approach the place of Mackerston, the immediate bed of the stream becomes more diversified by rocks, both on its side and in its channel. The Duke of Roxburgh's fishings stretch for nearly four miles to a point about half a mile below Kelso.

Nothing can surpass the beauty of the scene when looked at from Kelso bridge. And then when it is taken from other points, the bridge itself, the ruined abbey, the buildings of the town, with the wooded banks and the broad river form a combination of objects, harmonizing together, which are rarely to be met with. Each particular descrip-

tion of scenery requires to be judged of and estimated according to its own merits. You cannot, with any good effect or propriety, compare a wild, mountainous and rocky highland scene with a rich, lowland district. But this we will say, that, of all such lowland scenes, we know of none that can surpass the environs of Kelso; for whilst the mind is there filled with all those pleasing associations with peace and plenty, which such scenes are generally more or less calculated to inspire, there are many parts of it which would furnish glowing subjects for the artist. Here the Tweed is joined by the Teviot; and we shall finish this part of our subject by those beautiful lines from Teviot's own poet, Leyden, in his *Scenes of Infancy* :—

> " Bosomed in woods where mighty rivers run,
> Kelso's fair vale expands before the sun ;
> Its rising downs in vernal beauty swell,
> And, fringed with hazel, winds each flowery dell ;
> Green spangled plains to dimpling lawns succeed
> And Tempe rises on the banks of Tweed.
> Blue o'er the river Kelso's shadow lies,
> And copse-clad isles amid the waters rise."

Like a gentleman of large fortune, who has just received a great accession to it, the Tweed, having been joined by the Teviot, leaves Kelso with a magnitude and an air of dignity and importance that it has nowhere hitherto assumed during its course, and which it will be found to maintain, until it is ultimately swallowed up by that grave of all rivers—the sea. A few miles brings it to the confines of Berwickshire, and in its way thither it passes through a rich country.

Just before quitting the confines of Roxburghshire the

Tweed receives the classic stream of the Eden, which enters it from the left bank. The Eden is remarkable for the excellence of the trout, which are natives of the stream, but they require very considerable skill and great nicety of art to extract them by means of the angle from their native element.

And now we must congratulate our kind and courteous reader, as well as ourselves, that the romantic days of border warfare have been long at an end; for if it had been otherwise, our noble companion the Tweed, which has now brought us to a point where he washes England with his right hand waves whilst he laves Scotland with his left, might have brought us into some trouble. As he forms the boundary between England and Scotland from hence to the sea, we must in order to preserve him as a strictly Scottish river, say little about his right bank, except what may be necessary for mere illustration. But as we see before us the truly dilapidated ruins of what was once the strong and important fortress of Wark Castle, we must bestow a few words upon it.

Wark was the barony and ancient possession of the family of Ross, one of whom, William de Ross, was a competitor for the crown of Scotland in the reign of Edward I. of England. It continued in that family to the end of the Fourteenth Century, when it appears to have become the possession of the Greys, who took their title from the place, being styled the Lords Grey of Wark, in the descendants of which family it has continued to the present time.

The Scottish banks of the river from the Eden water to Coldstream are richly cultivated and partially wooded by hedgerows and the plantations of several properties. The view down the course of the stream, which runs down

wooded banks of no great height, and is crossed by the noble bridge of Coldstream, is extremely beautiful. The village of Coldstream itself is very pretty with its nice modern cottages and gardens; but it is likewise interesting from some of its old buildings. Coldstream was remarkable for its convent of Cistercian nuns, of which Mr. Chambers gives us the following interesting account:— Previous to the Reformation Coldstream could boast of a rich priory of Cistercian nuns; but of the buildings not one fragment now remains. The nunnery stood upon a spot a little eastwards from the market-place, where there are still some peculiarly luxuriant gardens, besides a small burying-ground, now little used. In a slip of waste ground, between the garden and the river, many bones and a stone coffin were dug up some years ago; the former supposed to be the most distinguished of the warriors that fought at Flodden; for there is a tradition that the abbess sent vehicles to that fatal field and brought away many of the better orders of the slain, whom she interred here. The field, or rather hill, of Flodden, is not more than six miles from Coldstream, and the tall stone that marks the place where the king fell, only about half that distance, the battle having terminated about three miles from the spot where it commenced.

General Monk made this his quarters till he found a favourable opportunity for entering England to effect the Restoration; and it was here that he raised that regiment that has ever afterwards had the name of the Coldstream Guards.

The River Till is an important tributary to the Tweed from its right bank. The Till runs so extremely slow that it forms a curious contrast with the Tweed, whose course

here is very rapid, giving rise to the following quaint verses:—

"Tweed said to Till,
What gars ye rin sae still?
Till said to Tweed,
Though ye rin wi' speed,
And I rin slow,
Yet where ye drown ae man
I drown twa."

We must now proceed to make our last inroad into England—an inroad, however, very different indeed from those which used to be made by our ancestors, when they rode at the head of their men-at-arms, for the purpose of harrying the country and driving a spoil. We go now upon a peaceful visitation of Norham Castle, certainly the most interesting of all objects of a similar description on the whole course of the Tweed.

The ancient name of the castle appears to have been Ubbanford. It stands on a steep bank, partially wooded and overhanging the river. It seems to have occupied a very large piece of ground as the ruins are very extensive, consisting of a strong square keep, considerably shattered, with a number of banks and fragments of buildings enclosed within an outer wall of a great circuit; the whole forming the most picturesque subject for the artist. It was here that Edward I. resided when engaged in acting as umpire in the dispute concerning the Scottish crown. From its position exactly upon the very line of the border, no war ever took place between the two countries without subjecting it to frequent sieges, during which it was repeatedly taken and retaken. The Greys of Chillingham

Castle were often successively captains of the garrison; yet as the castle was situated in the patrimony of St. Cuthbert, the property was in the see of Durham till the Reformation. After that period it passed through various hands.

The parish of Ladykirk, which now comes under our notice, upon the left bank of the Tweed, was created at the Reformation by the junction of Upsetlington and Horndean. James IV. had built a church which he dedicated to the Virgin Mary, whence it received its name.

As we proceed downwards, the scenery on the Tweed may be said to be majestic, from the fine wooded banks which sweep downwards to its northern shores. The surface of the water is continually animated by the salmon coble shooting athwart the stream.

A very handsome suspension bridge, executed by Captain Samuel Brown of the Royal Navy here connects England with Scotland, and at some distance below, the Tweed receives the Whitadder as its tributary from the left bank.

When we begin to find ourselves within the liberties of Berwick, we discover that we are in a species of no man's land. We are neither in England nor in Scotland, but in "our good town of Berwick-upon-Tweed." We have never passed through it without being filled with veneration for the many marks that yet remain to show what a desperate struggle it must have had for its existence for so many centuries, proving a determined bravery in the inhabitants almost unexampled in the history of man. It always brings to our mind some very ancient silver flagon, made in an era when workmen were inexpert and when the taste of their forms was more intended for use than for

ornament, but of materials so solid and valuable as to have made it survive all the blows and injuries, the marks of which are still to be seen upon it; and which is thus infinitely more respected than some modern mazer of the most exquisite workmanship.

Escaping from Berwick-bridge the Tweed, already mingled with the tide, finds its way down to its estuary, the sand and muddy shores of which have no beauty in them.

And now, oh silver Tweed! we bid thee a kind and last adieu, having seen thee rendered up to that all-absorbing ocean, with which all rivers are doomed to be commingled, and their existence terminated, as is that of frail man, with the same hope of being thence restored by those well-springs of life that are formed above the clouds.

NIAGARA

JOHN TYNDALL

IT is one of the disadvantages of reading books about natural scenery that they fill the mind with pictures, often exaggerated, often distorted, often blurred, and, even when well drawn, injurious to the freshness of first impressions. Such has been the fate of most of us with regard to the Falls of Niagara. There was little accuracy in the estimates of the first observers of the cataract. Startled by an exhibition of power so novel and so grand, emotion leaped beyond the control of the judgment, and gave currency to notions which have often led to disappointment.

A record of a voyage, in 1535, by a French mariner named Jacques Cartier, contains, it is said, the first printed allusion to Niagara. In 1603 the first map of the district was constructed by a Frenchman named Champlain. In 1648 the Jesuit Rageneau, in a letter to his superior at Paris, mentions Niagara as "a cataract of frightful height." In the winter of 1678 and 1679 the cataract was visited by Father Hennepin, and described in a book dedicated "to the King of Great Britain." He gives a drawing of the waterfall, which shows that serious changes have taken place since his time. He describes it as "a great and prodigious cadence of water, to which the universe does not offer a parallel." The height of the fall, according to Hennepin, was more than 600 feet. "The waters," he says, "which fall from this great precipice do foam and



THE NIAGARA

boil in the most astonishing manner, making a noise more terrible than that of thunder. When the wind blows to the south its frightful roaring may be heard for more than fifteen leagues." The Baron la Hontan, who visited Niagara in 1687, makes the height 800 feet. In 1721 Charlevois, in a letter to Madame de Maintenon, after referring to the exaggerations of his predecessors, thus states the result of his own observations: "For my part, after examining it on all sides, I am inclined to think that we cannot allow it less than 140 or 150 feet"—a remarkably close estimate. At that time, viz., a hundred and fifty years ago, it had the shape of a horseshoe, and reasons will subsequently be given for holding that this has been always the form of the cataract, from its origin to its present site.

As regards the noise of the fall, Charlevois declares the accounts of his predecessors, which, I may say, are repeated to the present hour, to be altogether extravagant. He is perfectly right. The thunders of Niagara are formidable enough to those who really seek them at the base of the Horseshoe Fall; but on the banks of the river, and particularly above the fall, its silence, rather than its noise, is surprising. This arises, in part, from the lack of resonance; the surrounding country being flat, and therefore furnishing no echoing surfaces to reinforce the shock of the water. The resonance from the surrounding rocks causes the Swiss Reuss at the Devil's Bridge, when full, to thunder more loudly than the Niagara.

Seen from below, the American Fall is certainly exquisitely beautiful, but it is a mere frill of adornment to its nobler neighbour the Horseshoe. At times we took to the river, from the centre of which the Horseshoe Fall appeared especially magnificent. A streak of cloud across the neck

of Mont Blanc can double its apparent height, so here the green summit of the cataract shining above the smoke of spray appeared lifted to an extraordinary elevation. Had Hennepin and La Hontan seen the fall from this position, their estimates of the height would have been perfectly excusable.

From a point a little way below the American Fall, a ferry crosses the river, in summer, to the Canadian side. Below the ferry is a suspension bridge for carriages and foot-passengers, and a mile or two lower down is the railway suspension bridge. Between ferry and bridge the river Niagara flows unruffled; but at the suspension bridge the bed steepens and the river quickens its motion. Lower down the gorge narrows, and the rapidity and turbulence increase. At the place called the "Whirlpool Rapids," I estimated the width of the river at 300 feet, an estimate confirmed by the dwellers on the spot. When it is remembered that the drainage of nearly half a continent is compressed into this space, the impetuosity of the river's rush may be imagined.

Two kinds of motion are here obviously active, a motion of translation and a motion of undulation—the race of the river through its gorge, and the great waves generated by its collision with, and rebound from, the obstacles in its way. In the middle of the river the rush and tossing are most violent; at all events, the impetuous force of the individual waves is here most strikingly displayed. Vast pyramidal heaps leap incessantly from the river, some of them with such energy as to jerk their summits into the air, where they hang momentarily suspended in crowds of liquid spherules. The sun shone for a few minutes. At times the wind, coming up the river, searched and sifted

the spray, carrying away the lighter drops and leaving the heavier ones behind. Wafted in the proper direction, rainbows appeared and disappeared fitfully in the lighter mist. In other directions the common gleam of the sunshine from the waves and their shattered crests was exquisitely beautiful. The complexity of the action was still further illustrated by the fact, that in some cases, as if by the exercise of a local explosive force, the drops were shot radially from a particular centre, forming around it a kind of halo.

At some distance below the Whirlpool Rapids we have the celebrated whirlpool itself. Here the river makes a sudden bend to the north-east, forming nearly a right angle with its previous direction. The water strikes the concave bank with great force, and scoops it incessantly away. A vast basin has been thus formed, in which the sweep of the river prolongs itself in gyratory currents. Bodies and trees which have come over the falls are stated to circulate here for days without finding the outlet. From various points of the cliffs above this is curiously hidden. The rush of the river into the whirlpool is obvious enough; and though you imagine the outlet must be visible, if one existed, you cannot find it. Turning, however, round the bend of the precipice to the north-east, the outlet comes into view.

The Niagara season was over; the chatter of sight-seers had ceased, and the scene presented itself as one of holy seclusion and beauty. I went down to the river's edge, where the weird loneliness seemed to increase. The basin is enclosed by high and almost precipitous banks—covered, at the time, with russet woods. A kind of mystery attaches itself to gyrating water, due perhaps to the fact that we are to some extent ignorant of the direction of its force. It is said that, at certain points of the whirlpool, pine-trees are

sucked down, to be ejected mysteriously elsewhere. The water is of the brightest emerald-green. The gorge through which it escapes is narrow, and the motion of the river swift though silent. The surface is steeply inclined, but it is perfectly unbroken. There are no lateral waves, no ripples with their breaking bubbles to raise a murmur; while the depth is here too great to allow the inequality of the bed to ruffle the surface. Nothing can be more beautiful than this sloping liquid mirror formed by the Niagara in sliding from the whirlpool.

A connected image of the origin and progress of the cataract is easily obtained. Walking northwards from the village of Niagara Falls by the side of the river, we have to our left the deep and comparatively narrow gorge, through which the Niagara flows. The bounding cliffs of this gorge are from 300 to 350 feet high. We reach the whirlpool, trend to the north-east, and after a little time gradually resume our northward course. Finally, at about seven miles from the present falls, we come to the edge of a declivity, which informs us that we have been hitherto walking on table-land. At some hundreds of feet below us is a comparatively level plain, which stretches to Lake Ontario. The declivity marks the end of the precipitous gorge of the Niagara. Here the river escapes from its steep mural boundaries, and in a widened bed pursues its way to the lake which finally receives its waters.

The fact that in historic times, even within the memory of man, the fall has sensibly receded, prompts the question, How far has this recession gone? At what point did the ledge which thus continually creeps backwards begin its retrograde course? To minds disciplined in such researches the answer has been, and will be—At the precipitous de-

clivity which crossed the Niagara from Lewiston on the American to Queenston on the Canadian side. Over this transverse barrier the united affluents of all the upper lakes once poured their waters, and here the work of erosion began. The dam, moreover, was demonstrably of sufficient height to cause the river above it to submerge Goat Island; and this would perfectly account for the finding, by Sir Charles Lyell, Mr. Hall, and others, in the sand and gravel of the island, the same fluviatile shells as are now found in the Niagara River higher up. It would also account for those deposits along the sides of the river, the discovery of which enabled Lyell, Hall, and Ramsay to reduce to demonstration the popular belief that the Niagara once flowed through a shallow valley.

The vast comparative erosive energy of the Horseshoe Fall comes strikingly into view when it and the American Fall are compared together. The American branch of the river is cut at a right angle by the gorge of the Niagara. Here the Horseshoe Fall was the real excavator. It cut the rock, and formed the precipice, over which the American Fall tumbles. But, since its formation, the erosive action of the American Fall has been almost nil, while the Horseshoe has cut its way for 500 yards across the end of Goat Island, and is now doubling back to excavate its channel parallel to the length of the island. This point, which impressed me forcibly, has not, I have just learned, escaped the acute observation of Professor Ramsay. The river bends; the Horseshoe immediately accommodates itself to the bending, and will follow implicitly the direction of the deepest water in the upper stream. The flexures of the gorge are determined by those of the river channel above it. Were the Niagara centre above the fall sinuous, the gorge

would obediently follow its sinuosities. Once suggested, no doubt geographers will be able to point out many examples of this action. The Zambesi is thought to present a great difficulty to the erosion theory, because of the sinuosity of the chasm below the Victoria Falls. But, assuming the basalt to be of tolerably uniform texture, had the river been examined before the formation of this sinuous channel, the present zigzag course of the gorge below the fall could, I am persuaded, have been predicted, while the sounding of the present river would enable us to predict the course to be pursued by the erosion in the future.

But not only has the Niagara River cut the gorge; it has carried away the chips of its own workshop. The shale, being probably crumbled, is easily carried away. But at the base of the fall we find the huge boulders already described, and by some means or other these are removed down the river. The ice which fills the gorge in winter, and which grapples with the boulders, has been regarded as the transporting agent. Probably it is so to some extent. But erosion acts without ceasing on the abutting points of the boulders, thus withdrawing their support and urging them gradually down the river. Solution also does its portion of the work. That solid matter is carried down is proved by the difference of depth between the Niagara River and Lake Ontario, where the river enters it. The depth falls from seventy-two feet to twenty feet, in consequence of the deposition of solid matter caused by the diminished motion of the river.

In conclusion, we may say a word regarding the proximate future of Niagara. At the rate of excavation assigned to it by Sir Charles Lyell, namely, a foot a year, five thousand years or so will carry the Horseshoe Fall far higher

than Goat Island. As the gorge recedes it will drain, as it has hitherto done, the banks right and left of it, thus leaving a nearly level terrace between Goat Island and the edge of the gorge. Higher up it will totally drain the American branch of the river; the channel of which in due time will become cultivable land. The American Fall will then be transformed into a dry precipice, forming a simple continuation of the cliffy boundary of the Niagara gorge. At the place occupied by the fall at this moment we shall have the gorge enclosing a right angle, a second whirlpool being the consequence. To those who visit Niagara a few millenniums hence I leave the verification of this prediction. All that can be said is, that if the causes now in action continue to act, it will prove itself literally true.

THE NIAGARA RIVER

G. K. GILBERT

THE Niagara River flows from Lake Erie to Lake Ontario. The shore of Erie is more than 300 feet higher than the shore of Ontario; but if you pass from the higher shore to the lower, you do not descend at a uniform rate. Starting from Lake Erie and going northwards, you travel upon a plain—not level, but with only gentle undulations—until you approach the shore of Lake Ontario, and then suddenly you find yourself on the brink of a high bluff, or cliff, overlooking the lower lake and separated from it only by a narrow strip of sloping plain.

Where the Niagara River leaves Lake Erie at Buffalo and enters the plain, a low ridge of rock crosses its path, and in traversing this its water is troubled; but it soon becomes smooth, spreads out broadly and indolently loiters on the plain. For three-fourths of the distance it cannot be said to have a valley, it rests upon the surface of the plateau; but then its habit suddenly changes. By the short rapid at Goat Island and by the cataract itself the water of the river is dropped two hundred feet down into the plain, and thence to the cliff at Lewiston it races headlong through a deep and narrow gorge. From Lewiston to Lake Ontario there are no rapids. The river is again broad, and its channel is scored so deeply in the littoral plain that the current is relatively slow, and the level of its water surface varies but slightly from that of the lake.

The narrow gorge that contains the river from the Falls to Lewiston is a most peculiar and noteworthy feature. Its width rarely equals the fourth of a mile, and its depth to the bottom of the river ranges from two hundred to five hundred feet. Its walls are so steep that opportunities for climbing up and down them are rare, and in these walls one may see the geologic structure of the plateau.

The contour of the cataract is subject to change. From time to time blocks of rock break away, falling into the pool below, and new shapes are then given to the brink over which the water leaps. Many such falls of rock have taken place since the white man occupied the banks of the river, and the breaking away of a very large section is still a recent event. By such observation we are assured that the extent of the gorge is increasing at its end, that it is growing longer, and that the cataract is the cause of its extension.

This determination is the first element in the history of the river. A change is in progress before our eyes. The river's history, like human history, is being enacted, and from that which occurs we can draw inferences concerning what has occurred, and what will occur. We can look forward to the time when the gorge now traversing the fourth part of the width of the plateau will completely divide it, so that the Niagara will drain Lake Erie to the bottom. We can look back to the time when there was no gorge, but when the water flowed on the top of the plain to its edge, and the Falls of Niagara were at Lewiston.

We may think of the river as labouring at a task—the task of sawing in two the plateau. The task is partly accomplished. When it is done the river will assume some other task. Before it was begun what did the river do?

How can we answer this question? The surplus water

discharge from Lake Erie could not have flowed by this course to Lake Ontario without sawing at the plateau. Before it began the cutting of the gorge it did not flow along this line. It may have flowed somewhere else, but if so it did not constitute the Niagara River. The commencement of the cutting of the Niagara gorge is the beginning of the history of the Niagara River.

The river began its existence during the final retreat of the great ice sheet, or, in other words, during the series of events that closed the age of ice in America. During the course of its history the length of the river has suffered some variation by reason of the successive fall and rise of the level of Lake Ontario. It was at first a few miles shorter than now; then it became suddenly a few miles longer, and its present length was gradually acquired.

With the change in the position of its mouth there went a change in the height of its mouth; and the rate at which it eroded its channel was affected thereby. The influence on the rate of erosion was felt chiefly along the lower course of the river between Lewiston and Fort Niagara.

The volume of the river has likewise been inconstant. In early days, when the lakes levied a large tribute on the melting glacier, the Niagara may have been a larger river than now; but there was a time when the discharge from the upper lakes avoided the route by Lake Erie, and then the Niagara was a relatively small stream.

The great life work of the river has been the digging of the gorge through which it runs from the cataract to Lewiston. The beginning of its life was the beginning of that task. The length of the gorge is in some sense a measure of the river's age.

The river sprang from a great geologic revolution, the

banishment of the dynasty of cold, and so its lifetime is a geologic epoch; but from first to last man has been a witness to its toil, and so its history is interwoven with the history of man. The human comrade of the river's youth was not, alas! a reporter with a notebook, else our present labour would be light. He has even told us little of himself. We only know that on a gravelly beach of Lake Iroquois, now the Ridge Road, he rudely gathered stones to make a hearth and built a fire; and the next storm breakers, forcing back the beach, buried and thus preserved, to gratify yet whet our curiosity, hearth, ashes and charred sticks.

In these Darwinian days we cannot deem primeval the man possessed of the Promethean art of fire, and so his presence on the scene adds zest to the pursuit of the Niagara problem. Whatever the antiquity of the great cataract may be found to be, the antiquity of man is greater.

THE MEUSE

ESTHER SINGLETON

THE Meuse, or Maas, has the distinction of belonging to three countries,—France, Belgium and Holland. In its long journey of 580 miles to the sea, it passes through varied and beautiful scenery, including the Forest of Ardennes, so famous in the Charlemagne romances and in the turbulent period of the Middle Ages; then through the vine-lands and hop-gardens so often laid waste by battles in Belgium; and finally through the flat lands of Holland where it has afforded inspiration to many painters.

Rising in France in the south of the Department Haute Marne near the Monts Faucilles, it crosses the Department Vosges, where, between Bazeilles and Noncourt, it disappears and has a subterranean course for three miles and a half. After crossing the Meuse and Ardennes Departments, passing by the towns of Neufchâteau, Vaucouleurs, Commercy St. Mihiel and Verdun, it reaches Sedan and enters Belgium. During the rest of its course, its name is variously Meuse, Maes, Maas and Merwede. Above Dinant it receives the Lesse and at Namur, its largest tributary, the Sambre, which almost doubles its volume. Going north-east, it flows through a narrow valley, enclosed between wooded hills and cliffs, dotted with picturesque villas and country houses, and at Liège it is joined by the Ourthe. The river now enters Dutch territory, and is henceforth called the Maas. Passing Maestricht, or Maas-



THE MEUSE

tricht, it flows by Roermond, where it receives the Roer, and at Venlo a canal begins which connects it with the Scheldt. At Gorinchem, it receives the Waal, an arm of the Rhine. Now the Maas soon divides: the Merwede flowing west, while the southern arm falls into the Biesbosch, an estuary of the sea. On reaching Dortrecht, river and sea navigation begin. Here the Maas again divides. The Old Maas flows directly west while the northern arm joins the Lek, a second branch of the Rhine, and continues its course to Rotterdam, where the Rotte joins it. The two arms unite here and flow into the North Sea by the Hook of Holland. Schiedam and Vlardingen are the last places of importance upon its banks. Including all windings, the Meuse is 580 miles long and is navigable for about 460 miles. In the early part of its course the Meuse traverses a wide valley covered by green meadows and then flows through narrow gorges, hemmed in by high hills and cliffs. At Dinant, picturesquely situated on the right bank, at the base of limestone cliffs crowned by a fortress, it is said that Philip the Good, Duke of Burgundy, and his son, Charles the Bold, having captured the town, caused 800 people to be drowned in the Meuse. The river, however, quite unconscious of this tragedy, flows on beneath a pinnacle of rock called the *Roche à Bayard*, because the famous steed, Bayard, belonging to the Quatre Fils d' Aymon, left a hoof-print here as it sprang over the valley when pursued by Charlemagne. Rocks of fantastic shapes now rise above the river, which is spanned by bridges. Innumerable villas and ancestral castles peep through the thick foliage and command the cliffs. The French border is reached at Givet; and at Sedan, memorable for the battle between the French and Germans (September 1, 1870),

Belgian territory is entered. The hills and valleys in the vicinity of Sedan were occupied by the Army of the Meuse.

At Namur, also grouped on the cliffs, the Meuse is crossed by several stone bridges. The citadel on a hill between the Sambre and Meuse is believed to occupy the site of the camp of the Aduatuci described by Cæsar. The Meuse, flowing through the town of Liège, forms an island which is connected with each bank by six bridges. The principal town lies on the left bank: Outremeuse is a factory town on the right bank. A fine view is afforded from the citadel (520 feet above the sea level), erected by Prince Bishop Maximilian Henry of Bavaria in 1650, on the site of earlier fortifications. The valleys of the Meuse, Ourthe and Vesdre are here bounded on the south by the Ardennes, while the Petersburg with Maestricht and the broad plains of Limburg are seen on the north. On the opposite bank of the Meuse is the Chartreuse. The river here is 460 feet wide and is crossed by several bridges, of which the Pont des Arches, rebuilt in 1860–3, dates from the Eighth Century, and is famous in local history.

After the train passes under the Chartreuse, the town of Jupille is reached, a favourite residence of Pepin of Héristal, who died here in 714. The town was often visited by Charlemagne.

The Dutch custom-house is at Eysden, where a beautiful old *château* is seen among its trees; and on the opposite bank of the Meuse, the Petersburg rises 330 feet above the river, with the *château* of Castert on its summit. We are now in the Dutch province of Limburg, with its capital, Maestricht, on the left bank of the Maas, the *Trajectum Superius* of the Romans (*Trajectum ad Mosam*), the seat of a bishopric; the residence of Frankish Kings; and, later, the

joint possession of Prince Bishops of Liège and the Dukes of Brabant.

At Gorinchem the river is joined by the Waal and as both streams are broad, an impressive sheet of water is the result. For a time, the river is known as the Merwede. About four miles below Gorinchem, the Biesbosch (reed forest) begins, a district of forty square miles and consisting of 100 islands formed by a destructive inundation in 1421, when seventy-two towns and villages and more than 100,000 persons perished.

This inundation also separated the next town of importance, Dordrecht, or Dort, as the Dutch call it, from the mainland. This town, one of the wealthiest towns of the Netherlands in the Middle Ages, presents a most picturesque appearance with its quaint gables, red-tiled roofs, and the lofty square tower of the Groote Kerk, which has kept watch over the Maas for six hundred years. How familiar it looks in the silvery light of early morning or when flooded with the warm golden glow of the afternoon to those who are well acquainted with the pictures of Cuyp and Jan van Goyen! Could we wander through the town, we should find much to study. There are numerous old mediæval houses in the Wynstraat; the ancient gate, Groothoofd-Poort, that had to be rebuilt in 1618; and the finest specimens of carving in Holland,—the choir-stalls of 1538–40 in the Groote Kerk. The harbour is full of boats and timber rafts that have drifted down the Rhine from the Black Forest and the *tjalks*, *praams* and other Dutch boats, large and small, with their lee-boards (called *zwaards*) used to steady the keelless boats, and bright sails become more numerous.

The Maas now flows through typical Dutch landscapes

and feeds many canals that lead to Delft and other cities.

At length we reach Rotterdam which lies on both sides of the river; the older city lies on the right bank of the Maas near its confluence with the Rotte. The many docks and canals—Koningshaven, Nieuwehaven, Haringvliet, Oudehaven, Wijnhaven, Scheepmakershaven, Leuvehaven, Zalmhaven, Westerhaven, etc., are filled with ocean-going vessels and river craft of all sizes and kinds, as well as nationalities, presenting forests of masts and innumerable funnels. The streets are animated with sailors and merchants, while the tree-bordered embankment, called the Bompjes, affords a gay promenade.

On the way to the sea, Schiedam on the Schie, is passed, and also the more interesting town of Vlaardingen, one of the oldest towns in Holland, as is evidenced by the market-place. It is the *dépôt* for the "great fishery," and from it a fleet of 125 boats and 1,500 men are sent forth annually. Maasluis, the next town, which takes a share in the "great fishery," is passed, and then the open sea greets the Maas at the Hook of Holland.

THE RHONE

ANGUS B. REACH

FEW travellers have much fancy for the most rapid of the great European streams. If they at all make its personal acquaintance, it is with knapsack on back, and iron-shod *bâton* in hand—when they stand upon the mother-glacier, and watch the river-child glide brightly into air—or perhaps it is near fair Geneva, that, loitering on a wooden bridge, they mark the second start in life of the strong river, and, if they be philosophers, lament the clamorous and not cleanly Arve. Later in the river's career—the pellucid waters of the snow are again and still more fatally fouled by the slow-running Saone which comes down by Lyons, heavy and fat with the rich mud of Burgundy. At the point of junction there, also, the tourist sometimes goes to observe the coalition of the streams, and to find out, that instead of the bigger river cleansing the smaller, the smaller utterly besmirches and begrimes the greater. So pondering over the moral, he too often takes little further heed of the Rhone; or if he does, it is as a mere beast of burden. He is bound south, and he knows that the "swift and arrowy Rhone" will add wings to the speed of steam; that stepping on board the long, long steamboat from the noble quays of Lyons at summer's dawn, he will step ashore amid the clamour of the uproarious Avignon porters by the summer's eve. But the day's flight—through rocks, and vines, and corn-lands, and by ancient towns and villages, and

through old bridges of stone, and modern bridges of boats, is to the conventional traveller usually nearly a blank. How different from the Rhine; no legends in the handbook, no castles, no picturesque students, no jolly Burschen choruses over pipes and beer. The steamer flies southwards. If she be one of the quickest of the Rhone fleet, and the river be in good order, she could carry you between sunrise and sunset, from the land where the chestnut and the walnut most abound, through the zone where the mulberry is almost exclusively the tree; next past the region where men are clipping, and twisting, and trimming the olive, at once sacred and classic, and, finally, fairly into the flats, where tropical rice grows out of fever-haunted swamps in the African-like jungles of the Camargue. During this flight, it is to be noted, that you have descended upwards of 600 feet, in fact, that you have been steaming down a modified water-fall, and have measured in a day, a run from a climate which may be described as temperate, to one which is, to all intents and purposes, torrid.

And in this run must we not have passed some rather curious objects, some rather striking points of scenery? May not there have been nooks, and ravines, and old towers within that sterile, yet viney land, burnt by the hot kiss of the sun, which are worthy of a traveller's afternoon? There are many such. The masonry of Rome still stands by the stream, and ancient rock-perched ruins there are, telling grim tales of the old religious wars of France; tales going back to the Albigenses and Count Raymond of Toulouse, and in later days dealing with the feuds which Ivry put an end to, but which were renewed when the peasants of the wild hills of the Cevennes, in their white *camisas*, Langue d' Oc for shirts, worn over their clothes as uniforms, held



THE RHONE

out the long and obstinate contest of the dragonnades, and frequently beat even Marichale Villars, with the best of the cavaliers of the Grand Monarque. But there are still other points of interest connected with the Rhone itself—parts and pendicles of the river. First, look at the current. Did you ever see a blacker, fiercer, more unmercifully minded looking stream? Take care how you get into it. There is drowning in its aspect. A sudden sweep down that foaming current, and all would be over. No swimming in these deadly whirling eddies. Once they embrace you in their watery arms, down you go, never stopping, even to die, to the sea, whither the Rhone is ever, ever rushing, ploughing its way through shingles, roaring round opposing rocks, sometimes carrying by assault a new channel through a green pasture, at others, when its sudden floods are out, rushing with a furious vengeance, at what at sunset was a fertile island, rich with the ripe corn, which to-morrow will be a torrent, and a few morrows afterwards—sand.

In spite of its fury of current, in spite of its sudden shiftings of sand and shingle banks, its sudden floods, its sudden fogs, the Rhone has been navigated from time inmemorial.

Toiling hard and slowly up the stream an *equipage* goes crawling along, composed of half a dozen huge barges hauled by those struggling, splashing, panting horses on the bank. Before the introduction of stream, there were upwards of fifty of these barge squadrons. They floated down from Lyons to Beaucaire, opposite Arles, in two days, but difficult and dreary was the passage back. A month in summer, six weeks in winter were consumed in the tedious struggle with the ever-opposing stream.

But our boat is sweeping towards a rocky promontory.

The contracted stream shoots rapidly through the defile; and, at the narrowest point, a chain bridge appears, connecting two small villages clustered beneath vine-covered steps. The crag above that on the right hand is castled most picturesquely; that on the left is crowned with a more genial diadem. The first village is Tournon, the second Tain. The latter is poor, shabby, dirty: the houses are rickety and slovenly. All the slope of the cliff is split up into squares, triangles, etc., and bounded by stone walls: and these are full of vines—the aristocracy of the grape—in short, Hermitage.

Descending the Rhone a little further, we find ourselves opposite Valence. About a mile from the river—the intervening space is corn-country, the fields dotted with mulberries—rises a bold and high peak of rocks, and on their summit, a nobly perched lyric of a castle.

Clamber up! The hill is steep, and tough to ascend, and the heath is slippery. Nevertheless, persevere, and be rewarded at length by entering the ruins, where you will perceive a half-crumbled cavernous looking recess in a thick wall. It seems to have been a fireplace. Approach cautiously! That fireplace has no back, and fuel flung in there will roll out at a hole behind, and find itself upwards of eight hundred feet high in the yielding air.

The castle once belonged to a Protestant lord, the Seigneur de Crussol, and when, after a successful foray across the river, amongst the Catholic population, he managed to secure a score or two of prisoners, high festival was held, and the unhappy captives, amid the brimming glasses and convivial jokes of the company, were flung into the chimney of Crussol, and found by the trembling peasantry indefinite masses of horror next morning.

These were wild old savage days; but let us go back for a few moments to days far more ancient though hardly more barbarous. Hannibal, coming from Spain, also crossed the Rhone; and, looking at that wild rushing river, so deep and broad, and perpetual in its current, we have often thought that the great Carthaginian performed a more brilliant exploit in getting his moorish cavalry, his war-elephants, and his undisciplined Spanish brigades, across the water, than across the mountains. No one knows the spot he selected for his ferriage. Imagine the leader with his troops encamped, and chafing at the broad river which lay between them and those distant snow-capped hills, beyond which was Italy. In three days, we are told, the feat was achieved. Apocryphal accounts tell us how the horses, mad with the terror of fire, swam wildly across the stream, and how the elephants trumpeted upon the rafts.

A wide champagne country, fertile to magnificent luxuriance—the rushing Rhone dotted with wooded islands; a city clustering on a hill and a castle crowning it, and we approach Avignon. Here the traveller usually leaves the river (if he be antiquarian and historic) and examines the noble churches, towers, bastions and dungeons with which the Avignon Popes beautified the city; or, if he be sentimental and romantic, he prepares his feelings, works them —hard work it usually is—into a proper frame, and proceeds to Vaucluse. A pretty spot it is in itself, with its grottoed rocks and limpid waters; and certainly the name of Petrarch may fairly enough add a certain degree of interest to the scene.

The last point of interest is the delta of the river; the several mouths through which, after its rapid course from the lake of Geneva, the Rhone at length pours itself into

the sea. The Carmargue, as this strange swampy district is called, is seldom or ever trodden by English foot. It has no attractions for the ordinary sightseer, but it has many for the lover of aspects of nature, of a strange and unwonted character, and of which few are to be seen in Europe. Proceeding from Arle, along a muddy, clayey road, through a perfect flat intersected by numerous draining ditches, you gradually find yourself arriving in a region where the earth appears to be losing its consistence and melting into mud beneath your feet. Forests of swamp-growing trees, willows, and marsh-mallows stretch around; and as you emerge from them you come upon a boundless plain, an enormous stagnant flat—mud and water and water and mud for scores and scores of square miles, but intersected as far as the eye can reach, by a network of clay walls, upon which you can make your way, gazing in wonder upon the perfect sublimity of the apparent desolation. But there is no desolation in the case. These swamps are rice-fields. If you paid your visit during the summer, the grain will be growing out of the tepid water; if during the autumn, you will see withered beds of the straw left for manure, slowly rotting in the soil. At long distances crawling figures appear. These are the labourers employed by the Company which grows the rice, and whose stations for draining out the surplus water, which would otherwise perhaps overwhelm the whole district, may be fixed by their lofty siphon tubes breaking the dead flatness of the several lines of view. And yet there is a dreary death-like beauty about all this silent land. Shelley has sung such; Tennyson has done it more elaborately and better, and we find traces of the sentiment in "Eothen." The vast and the drear have a sublime of their own, and

in this dismal waste of laid-out world we feel it. Even ugliness is made respectable by extent, and we leave the swamps with an impression of lorn, melancholy grandeur looming in our minds.

THE YUKON

WILLIAM OGILVIE

TO within a few years ago a great unexplored solitude extended to the eastward between the valleys of the Upper Yukon, or Lewes, and the Mackenzie, and from the sixtieth parallel of latitude northward to the shores of the "frozen ocean." This extensive region is known as the Yukon country, a name rendered appropriate by the fact that it is drained by the Yukon River and its tributaries, which form one of the great river systems of the world.

Walled in by high mountains, and in consequence unapproachable from every side, it is not strange that the Yukon district should so long have remained in almost undisturbed seclusion. Had it not been for the fact that the rich metalliferous belt of the Coast and Gold Ranges passes through the district from one end to the other, the probability is that it would still have remained unexplored for many years to come.

Only four gates of approach to the district exist, and, strangely enough, these are situated at the four corners. From the north-west, access is gained to the country by following the Yukon from its mouth in Behring Sea; from the north-east, by crossing from the Mackenzie to the Porcupine, and following down the latter stream to its confluence with the Yukon; from the south-east, by ascending the Liard from Fort Simpson and crossing the water-shed to the head-waters of the Pelly; and finally, from the south-

west, by entering where the coast range is pierced by the Chilkoot and Chilkat Passes.

As a matter of fact, all these routes are beset with difficulties, and when it is remembered that there are only four roads into a region three times greater in extent than the total area of the New England States, it is not to be wondered at that the total population of the region should consist of a few scattered Indian families and a hundred or so of hardy miners.

Occasional contributions to our knowledge of the district have been made from time to time for at least half a century, mainly by officers of the Hudson's Bay Company, miners and *employés* of the abandoned Telegraph Expedition; and skeleton maps of the interior have been constructed in accordance with the topographical data, so far as known.

Among recent expeditions that of Lieutenant Schwatka, of the United States Army, in the summer of 1883, may be mentioned. Entering the country by the Chilkoot Pass, Lieutenant Schwatka floated down the Yukon on a raft from the source of the Lewes River to Nuklikahyet, continuing his journey from this point to the sea by boat. The object of this expedition was to examine the country from a military point of view, and to collect all available information with regard to the Indian tribes. We are indebted to it also for a great deal of general information with regard to the country. Schwatka, who seems to have gone through the country with his eyes open, used the explorer's baptismal privilege freely, and scattered monuments of Schwatkanian nomenclature broadcast throughout the land, re-christening many places that had already been named, and doing so too in apparent indifference to the

fact that many thus set aside had an established priority of many years.

The part of the journey between Victoria and Chilkoot Inlet has been so much written of, talked of and pictured during the last few years that I will repeat only one of the many statements made concerning it—that though it is in ocean waters and can be traversed by the largest ships, it is so sheltered by countless islands from the gales and waves of the vast Pacific, nearly the whole of the length, that its waters are always as smooth as those of a large river. In marked contrast to this is the west coast of the United States, where harbours are like angel's visits.

Chatham Strait and Lynn Channel lie almost in a straight line, and during the summer there is always a strong wind blowing up from the sea. At the head of Lynn Channel are Chilkat and Chilkoot Inlets. The distance down these channels to the open sea is about three hundred and eighty miles, and along the whole extent of this the mountains on each side of the water confine the incoming currents of air and deflect inclined currents in the direction of the axis of the channel. Coming from the sea, these air currents are heavily charged with moisture, which is precipitated when they strike the mountains, and the fall of rain and snow is consequently very heavy.

The rapids extending for a couple of miles below the Cañon, are not at all bad. What constitutes the real danger is a piece of calm water forming a short, sharp bend in the river, which hides the last or "White Horse" rapids from sight until they are reached. These rapids are about three-eighths of a mile long. They are the most dangerous on the river, and are never run through in boats except by accident. Parties always examine the Cañon and rapids

below before going through, and coming to the calm water suppose they have seen them all, as all noise from the lower rapid is drowned in that of the ones above. On this account several parties have run through the "White Horse," being ignorant of its existence until they were in it. These rapids are confined by low basaltic banks, which, at the foot, suddenly close in and make the channel about thirty yards wide. It is here the danger lies, as there is a sudden drop, and the water rushes through at a tremendous rate, leaping and seething like a cataract. The miners have constructed a portage road on the west side, and put down rollways in some places on which to shove their boats over. They have also made some windlasses with which to haul their boats uphill, notably one at the foot of the Cañon. This roadway and the windlasses must have cost them many hours of hard labour.

Lake Labarge was reached on the evening of the 26th of July, and our camp pitched on its southern shore. The lake is thirty-one miles in length, broad at both ends and narrow in the middle, lying north and south, like a long slender foot-print made by some gigantic Titan in long-bygone days.

As the prevailing wind blows almost constantly down the lake, the miners complain much of the detention from the roughness of the water, and for the three days I was on the lake, I certainly cannot complain of any lack of attention from blustering Australis.

The survey was carried along the western shore, which is irregular in shape, being indented by large, shallow bays, especially at the upper and lower ends.

Just above where the lake narrows in the middle, there is a large island, which is shown on Schwatka's map as a

peninsula, and called by him Richtofen Rocks. How he came to think it a peninsula I cannot understand, as it is well out in the lake; the nearest point of it to the western shore is upwards of half a mile distant, and the extreme width of the lake here, as determined from triangulation, is not more than five miles, which includes the depth of the deepest bays on the western side. It is therefore difficult to understand that he did not see it as an island. The upper half of this island is gravelly, and does not rise very high above the lake; the lower end is rocky and high, the rock of a bright red colour and probably granite.

At the lower end of the lake there is a deep wide valley extending northwards, which has evidently at one time been the outlet of the lake. In this the mixed timber, poplar, and spruce, is of a size which betokens a fair soil; the herbage, too, is more than usually rich for this region. This valley, which Dr. Dawson has named "Ogilvie Valley," is extensive, and if ever required as an aid to the sustenance of our people, will figure largely in the district's agricultural assets.

We left this, the last lake of the great chain, behind us on Saturday, the 30th of July, and proceeded with a moderate current of about four miles an hour. The river just here is crooked and runs past high, steep banks surmounted by scrub pine and stunted poplar which shut in the narrow valley. There are, however, many flats of moderate extent, along the river and at its confluence with other streams, where the soil is fair.

The waters of the Big Salmon are sluggish and slow. The valley, as seen from the mouth, is wide, and gives one the impression of being occupied by a much more important stream. Looking up it, in the distance could be

seen many high peaks covered with snow, and, as this was in the beginning of August, it is likely they are always covered so—which would make their probable altitude above the river, five thousand feet or more.

Two days' run, or about thirty-six miles, the river constantly winding low, sandy points, and dotted with small, well-timbered islands, brought us to the Little Salmon (Daly of Schwatka), a small and unimportant stream entering upon the east. One of the most remarkable objects along the river, located just below the Little Salmon, is a huge hemisphere of rock, called the "Eagle's Nest," rising abruptly from a gravel slope on the east bank, to a height of about five hundred feet. It is of a light grey colour, but what the character of the rock is I could not determine, as I saw it only from the river, which is about a quarter of a mile distant.

We passed the mouth of the Nordenskiold on the 9th of August. The river here makes a loop of eight miles round a hill on the east bank named by Schwatka, Tantalus Butte. The distance across from point to point is only half a mile.

Early the next day we heard the booming of the Rink Rapids in the distance, and it was not long before they were in sight. These rapids are known to miners as Five Finger Rapids, from the fact that five large, bold masses of rock stand in mid-channel. This obstruction backs up the water so as to raise it about a foot, causing a swell below for a few yards.

Six miles below Rink Rapids are what are known as "Little Rapids." This is simply a barrier of rocks which extends from the westerly side of the river about half-way across. Over this barrier there is a ripple which would offer no great obstacle to the descent in a good canoe.

About five miles above Pelly River there is another lake-like expanse filled with islands. The river here is nearly a mile wide, and so numerous and close are the islands that it is impossible to tell where the shores of the river are. The current, too, is swift, leading one to suppose the water shallow; but I think that even here a channel deep enough for such boats as will navigate this part of the river, could easily be found. Schwatka named this group "Ingersoll Islands."

About a mile below the junction with the Lewes, and on the south side, stands all that remains of the only permanent trading-post ever built by white men in the district. This post was established by Robert Campbell, for the Hudson's Bay Company, in the summer of 1848. It was built upon the point of land between the two rivers, but this location proving untenable, on account of flooding by ice-jams in the spring, it was, in the season of 1852, moved across the river to where the ruins now stand. It appears that the houses composing the post were not finished when the Indians from the coast on Chilkat and Chilkoot Inlets, came down the river to put a stop to the competitive trade which Mr. Campbell had inaugurated and which they found to seriously interfere with their profits. Their method of trade appears to have been then pretty much as it is now—very one-sided. What they found convenient to take by force, they took; and what they found convenient to pay for, they paid for—at their own price.

Rumours had reached the post that the coast Indians contemplated a raid, and, in consequence, the friendly Indians in the vicinity remained about nearly all summer. Unfortunately, they went away for a short time, and, during their absence, the coast Indians arrived and pillaged the

place, and set fire to it, leaving nothing but the remains of two chimneys, which are still standing. This raid and capture took place on Sunday, the 1st of August, 1852. Mr. Campbell was ordered to leave the country within twenty-four hours, and accordingly he dropped down the river. On his way he met some of the local Indians, and returned with them, but the robbers had made their escape. Mr. Campbell went on down the river until he met the outfit for his post on its way up from Fort Yukon. He turned it back. He then ascended the Pelly, crossed to the Liard, and reached Fort Simpson, on the Mackenzie, late in October.

Nothing more was ever done in the vicinity of Fort Selkirk by the Hudson's Bay Company after these events, and in 1869 the company was ordered by Capt. Chas. W. Raymond, who represented the United States Government, to evacuate the post at Fort Yukon, which he had ascertained to be west of the 141st meridian. The post was occupied by the company, however, for some time after the receipt of the order, until Rampart House, which was intended to be on British territory, and to take the trade previously done at Fort Yukon, was built. Under present conditions the company cannot very well compete with the Alaska Fur Company, whose agents do the only trade in the district, and they appear to have abandoned—for the present at least—all attempts to do any trade nearer to it than Rampart House, to which point, notwithstanding the distance and difficulties in the way, many of the Indians on the Pelly-Yukon make a trip every two or three years to procure goods in exchange for their furs.

On the 19th I resumed my journey northwards. Opposite Fort Selkirk, the Pelly-Yukon River is about one-third

of a mile broad; and it maintains this width down to White River, a distance of ninety-six miles. Islands are numerous, so much so that there are few parts of the river where one or more are not in sight; many of them are of considerable size, and nearly all are well timbered.

Between Stewart and White Rivers the river spreads out to a mile and upwards in width, and is a maze of islands and bars. Stewart River, which was reached on the following day, enters from the east in the middle of a wide valley, with low hills on both sides, rising on the north side in clearly marked steps or terraces to distant hills of considerable height. The river, a short distance up, is two hundred yards in width, the current slack, the water shallow and clear, but dark-coloured; while at the mouth, I was fortunate enough to meet a miner, named McDonald, who had spent the whole of the summer of 1887 on the river and its branches, prospecting and exploring. He gave me a good deal of information, which I have incorporated in my map of the district. This man had ascended two of the main branches of the river. At the head of one of them he found a large lake, which he named Mayhew Lake. On the other branch he found falls, which he estimated to be from one to two hundred feet in height. McDonald went on past the falls to the head of this branch, and found terraced gravel hills to the west and north; he crossed them to the north and found a river flowing northwards. On this he embarked on a raft, and floated down it for a day or two, thinking it would turn to the west and join the Stewart, but finding it still continuing north, and acquiring too much volume to be any of the branches he had seen while passing up the Stewart, he returned to his point of departure, and after prospecting among the hills

around the head of the river he started westwards, crossing a high range of mountains composed principally of shales with many thin seams of what is called quartz, ranging from one to six inches in thickness. On the west side of this range he found the head-waters of Beaver River, which he descended on a raft, taking five days to do so.

It is probable the river flowing northwards, on which he made a journey and returned, is a branch of Peel River. The timber on the gravel terraces of the water-shed, he described as small and open. He was alone in this unknown wilderness all summer, not seeing even any of the natives. There are few men, I think, so constituted as to be capable of isolating themselves in such a manner.

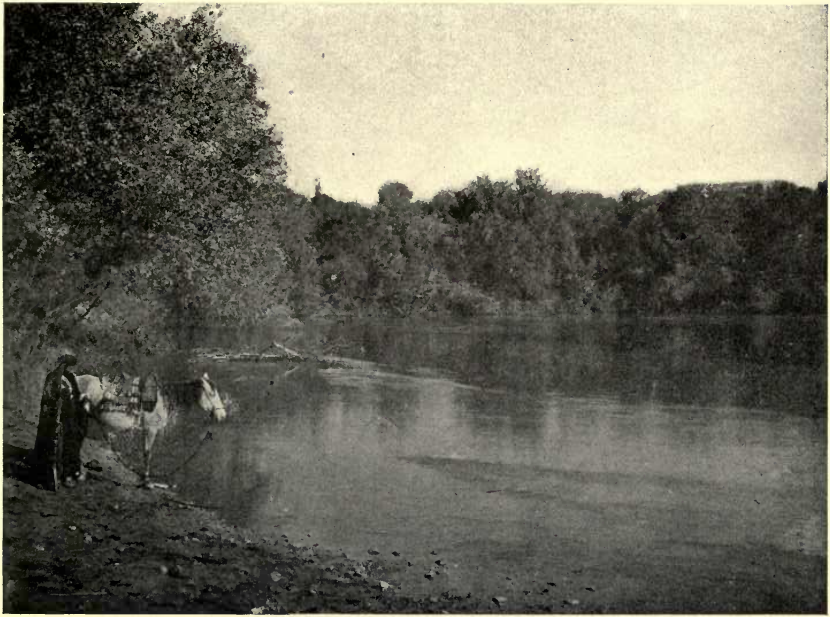
On the 1st of September, we passed the site of the temporary trading-post shown on the maps as Fort Reliance. Several days of continuous rain now interrupted our work so that Forty Mile River (Cone Hill River of Schwatka) was not reached till the 7th of September.

THE JORDAN

ANDREW ROBERT FAUSSET

THE Jordan is two hundred miles long from its source at Antilebanon to the head of the Dead Sea. It is not navigable, nor has it ever had a large town on its banks. The cities Bethsham and Jericho on the west, and Gerasa, Pella, and Gadara to the east of Jordan produced intercourse between the two sides of the river. Yet it is remarkable as the river of the great plain (*ha Arabah*, now el Ghor) of the Holy Land, flowing through the whole from north to south. Lot, from the hills on the north-west of Sodom, seeing the plain well watered by it, as Egypt is by the Nile, chose that district as his home, in spite of the notorious wickedness of the people.

Its sources are three. The northernmost near Hasbeya between Hermon and Lebanon; the stream is called Hasbany. The second is best known, near Banias, *i. e.*, Cæsarea Philippi, a large pool beneath a high cliff, fed by gushing streamlets, rising at the mouth of a deep cave; thence the Jordan flows, a considerable stream. The third is at Dan, or Tel el Kady (Daphne); from the north-west corner of a green eminence a spring bursts forth into a clear wide pool, which sends a broad stream into the valley. The three streams unite at Tel Dafneh, and flow sluggishly through marshland into Lake Meron. Captain Newbold adds a fourth, *wady el Kid* on the south-east of the slope, flowing from the springs Esh Shar. Indeed



THE JORDAN

Antilebanon abounds in gushing streams which all make their way into the swamp between Banias and Huleh and become part of the Jordan. The traditional site of Jacob's crossing Jordan at his first leaving Beersheba for Padan Aram is a mile and a half from Merom, and six from the Sea of Galilee: in those six its descent with roaring cataracts over the basaltic rocks is 1,050 feet. This, the part known to Naaman in his invasions, is the least attractive part of its course; and was unfavourably contrasted with Abana and Pharpar of his native land. From the Sea of Galilee, it winds 200 miles in the sixty miles of actual distance to the Dead Sea. Its tortuous course is the secret of the great depression (the Dead Sea being 663 feet below the lake of Galilee) in this distance.

Three banks may be noted in the Ghor or Jordan valley, the upper or first slope (the abrupt edge of a wide table land reaching to the Hauran Mountains on the east and the high hills on the west side), the lower or middle terrace embracing the strip of land with vegetation, and the true banks of the river bed, with a jungle of agnus castus, tamarisks, and willows and reed and cane at the edge, the stream being ordinarily thirty yards wide. At the flood, the river cannot be forded, being ten or twelve feet deep east of Jericho; but in summer it can, the water being low. To cross it in the flood by swimming was an extraordinary feat performed by the Gadites who joined David; this was impossible for Israel under Joshua with wives and children. The Lord of the whole earth made the descending waters stand in a heap very far from their place of crossing, viz: by the town of Adam, that is beside Zarthan or Zaretan, the moment that the feet of the priests bearing the ark dipped into the water. The priests then stood in

the midst of the dry river bed till all Israel crossed over. Joshua erected a monument of twelve large stones in the river bed where the priests had stood, near the east bank of the river. This would remain at least for a time as a memorial to the existing generation besides the monument erected at Gilgal.

By this lower ford, David passed to fight Syria, and afterwards in his flight from Absalom to Mahanaim, east of Jordan. Thither Judah escorted him and we crossed in a ferry boat. Here Elijah and Elisha divided the waters with the prophets' mantle. At the upper fords Naaman washed off his leprosy. Here too the Syrians fled, when panic-struck by the Lord.

John the Baptist "first" baptized at the lower ford near Jericho, whither all Jerusalem and Judea resorted, being near; where too, our Lord took refuge from Jerusalem, and where many converts joined Him, and from whence He went to Bethany to raise Lazarus. John's next baptisms were at Bethabara; thither out of Galilee the Lord Jesus and Andrew repaired after the baptisms in the south, and were baptized. His third place of baptism was near Ænon and Salim, still farther to the north, where the water was still deep though it was summer, after the passover, for there was no ford there; he had to go thither, the water being too shallow at the ordinary fords. John moved gradually northwards towards Herod's province, where ultimately he was beheaded; Jesus, coming from the north southwards, met John half-way.

The overflow of Jordan dislodged the lion from its lair on the wooded banks. Between Merom and Lake Tiberias the banks are so thickly wooded as often to shut out the view of the water.

Four-fifths of Israel, nine tribes and a half, dwelt west, and one-fifth, two and a half, dwelt east of Jordan. The great altar built by the latter was the witness of the oneness of the two sections. Of the six cities of refuge three were east, three west of Jordan at equal distances.

Jordan enters Gennesareth two miles below the ancient city Julias, or Bethsaida, of Gaulonitis on the east bank. It is seventy feet wide at its mouth, a sluggish, turbid stream. The lake of Tiberias is 653 feet below the Mediterranean level. The Dead Sea is 1,316 feet below the Mediterranean, the springs of Hasbeya are 1,700 above the Mediterranean, so that the valley falls more than 3,000 feet in reaching the north end of the Dead Sea. The bottom descends 1,308 feet lower, in all 2,600 below the Mediterranean. The Jordan, well called "the Descender," descends eleven feet every mile. Its sinuosity is less in its upper course. Besides the Jabbok it receives the Hieromax (*Yarmuk*) below Gennesareth. From Jerusalem to Jordan is only a distance of twenty miles; in that distance the descent is 3,500 feet, one of the greatest chasms in the earth; Jerusalem is 2,581 feet above the Mediterranean.

Bitumen wells are not far from the Hasbeya in the north. Hot springs abound about Tiberias; and other tokens of volcanic action, tufa, etc., occur near the Yarmuk's mouth and elsewhere. Only on the east border of Lake Huleh, the land is now well cultivated, and yields largely wheat, maize, rice, etc. Horses, cattle, and sheep, and black buffaloes (the "bulls of Bashan") pasture around. West of Gennesareth are seen corn, palms, vines, figs, melons, and pomegranates. Cultivation is rare along the lower Jordan, but pink oleanders, arbutus, rose hollyhocks, the purple thistle,

marigold, and anemone abound. Tracks of tigers and wild boars, flocks of wild ducks, cranes, and pigeons have been seen by various explorers. There are no bridges earlier than the Roman. The Saracens added or restored some. The Roman bridge of ten arches, was on the route from Tiberias to Gadara. In coincidence with Scripture, the American survey sets down three fords: that at Tarichæa, the second at the Jabbok's confluence with the Jordan, and that at Jericho. The Jordan seldom now overflows its banks; but Lieutenant Lynch noticed sedge and driftwood high up in the overhanging trees on the banks, showing it still at times overflows the plains. The flood never reaches beyond the lower line of the Ghor, which is covered with vegetation. The plain of the Jordan between the Sea of Galilee and the Dead Sea is generally eight miles broad, but at the north end of the Dead Sea the hills recede so that the width is twelve miles, of which the west part is named "the plains of Jericho." The upper terrace immediately under the hills is covered with vegetation; under that is the Arabah or desert plain, barren in its southern part except where springs fertilize it, but fertile in its northern part and cultivated by irrigation. Grove remarks of the Jordan: "So rapid that its course is one continued cataract, so crooked that in its whole lower and main course it has hardly a half mile straight, so broken with rapids that no boat can swim any distance continuously, so deep below the adjacent country that it is invisible and can only be with difficulty approached; refusing all communication with the ocean, and ending in a lake where navigation is impossible, unless for irrigation, it is in fact what its Arabic name signifies, nothing but a 'great watering place,' *Sheriat el Khebir*."

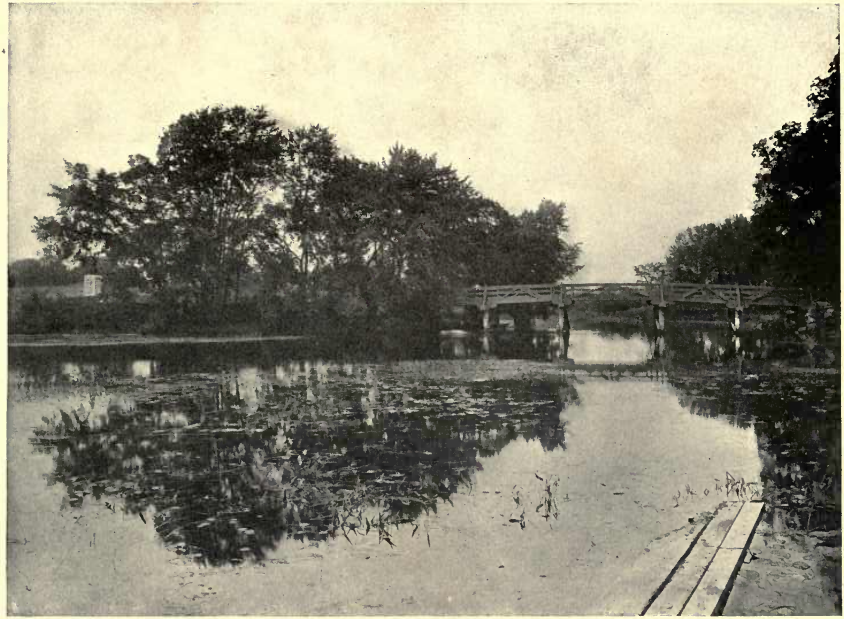
THE CONCORD

HENRY D. THOREAU

THE Musketaquid, or Grass-ground River, though probably as old as the Nile or Euphrates, did not begin to have a place in civilized history, until the fame of its grassy meadows and its fish attracted settlers out of England in 1635, when it received the other but kindred name of Concord from the first plantation on its banks, which appears to have been commenced in a spirit of peace and harmony. It will be Grass-ground River as long as grass grows and water runs here; it will be Concord River only while men lead peaceable lives on its banks. To an extinct race it was grass-ground, where they hunted and fished, and is still perennial grass-ground to Concord farmers, who own the great meadows, and get the hay from year to year. "One branch of it," according to the historian of Concord, for I love to quote so good authority, "rises in the south part of Hopkinton, and another from a pond and a large cedar-swamp in Westborough," and flowing between Hopkinton and Southborough, through Framingham, and between Sudbury and Wayland, where it is sometimes called Sudbury River, it enters Concord at the south part of the town, and after receiving the North or Assabeth River, which has its source a little farther to the north and west, goes out at the north-east angle, and flowing between Bedford and Carlisle, and through Billerica, empties into the Merrimack at Lowell. Between Sudbury and Wayland the

meadows acquire their greatest breadth, and when covered with water, they form a handsome chain of shallow vernal lakes, resorted to by numerous gulls and ducks. Just above Sherman's Bridge, between these towns, is the largest expanse, and when the wind blows freshly in a raw March day, heaving up the surface into dark and sober billows or regular swells, skirted as it is in the distance with alder-swamps and smoke-like maples, it looks like a smaller Lake Huron, and is very pleasant and exciting for a landsman to row or sail over. The farmhouses along the Sudbury shore, which rises gently to a considerable height, command fine water prospects at this season. The shore is more flat on the Wayland side and this town is the greatest loser by the flood. Its farmers tell me that thousands of acres are flooded now, since the dams have been erected, where they remember to have seen the white honeysuckle or clover growing once, and they could go dry with shoes only in summer. Now there is nothing but blue-joint and sedge and cut-grass there, standing in water all the year round. For a long time, they made the most of the driest season to get their hay, working sometimes till nine o'clock at night, sedulously paring with their scythes in the twilight round the hummocks left by the ice; but now it is not worth the getting when they can come at it and they look sadly round to their wood-lots and upland as a last resource.

It is worth the while to make a voyage up this stream, if you go no farther than Sudbury, only to see how much country there is in the rear of us; great hills, and a hundred brooks, and farmhouses, and barns, and haystacks, you never saw before, and men everywhere. Sudbury, that is *Southborough* men, and Wayland, and Nine-Acre-Corner men, and Bound Rock, where four towns bound on



THE CONCORD

a rock in the river, Lincoln, Wayland, Sudbury, Concord. Many waves are there agitated by the wind, keeping nature fresh, the spray blowing in your face, reeds and rushes waving; ducks by the hundred, all uneasy in the surf, in the raw wind, just ready to rise, and now going off with a clatter and a whistling like riggers straight from Labrador, flying against the stiff gale with reefed wings, or else circling round first, with all their paddles briskly moving, just over the surf, to reconnoitre you before they leave these parts; gulls wheeling overhead, muskrats swimming for dear life, wet and cold, with no fire to warm them by that you know of; their laboured homes rising here and there like haystacks; and countless mice and moles and winged titmice along the sunny, windy shore; cranberries tossed on the waves and heaving up on the beach, their little red skiffs beating about among the alders;—such natural tumult as proves the last day is not yet at hand. And there stands all around the alders, and birches, and oaks, and maples, full of glee and sap, holding in their buds, until the waters subside. You shall perhaps run aground on Cranberry Island, only some spires of last year's pipe-grass above water, to show where the danger is, and get as good a freezing there as anywhere on the North-west Coast. I never voyaged so far in all my life. You shall see men you never heard of before, whose names you don't know, going away down through the meadows with long ducking-guns, with water-tight boots wading through the fowl-meadow grass, on bleak, wintry, distant shores, with guns at half-cock, and they shall see teal, blue-winged, green-winged, shelldrakes, whistlers, black ducks, ospreys, and many other wild and noble sights before night, such as they who sit in parlours never dream of. You shall see rude and sturdy, experienced

men, keeping their castles, or teaming up their summer's wood, or chopping alone in the woods, men fuller of talk and rare adventure in the sun and wind and rain, than a chestnut is of meat; who were out not only in '75 and 1812, but have been out every day of their lives; greater men than Homer, or Chaucer, or Shakespeare, only they never got time to say so; they never took to the way of writing. Look at their fields, and imagine what they might write, if ever they should put pen to paper. Or what have they not written on the face of the earth already, clearing, and burning, and scratching, and harrowing, and ploughing, and subsoiling, in and in, and out and out, and over and over, again and again, erasing what they had already written for want of parchment.

As yesterday and the historical ages are past, as the work of to-day is present, so some flitting perspectives, and demi-experiences of the life that is in nature are in time veritably future, or rather outside to time, perennial, young, divine, in the wind and rain which never die.

The respectable folks,—
Where dwell they?
They whisper in the oaks,
And they sigh in the hay;
Summer and winter, night and day,
Out on the meadow, there dwell they.
They never die,
Nor snivel, nor cry,
Nor ask our pity
With a wet eye.
A sound estate they never mend,
To every asker readily lend;

To the ocean wealth,
To the meadow health,
To Time his length,
To the rocks strength,
To the stars light,
To the weary night,
To the busy day,
To the idle play;
And so their good cheer never ends,
For all are their debtors, and all their friends.

Concord River is remarkable for the gentleness of its current, which is scarcely perceptible, and some have referred to its influence the proverbial moderation of the inhabitants of Concord, as exhibited in the Revolution, and on later occasions. It has been proposed, that the town should adopt for its coat of arms a field verdant, with the Concord circling nine times around. I have read that a descent of an eighth of an inch in a mile is sufficient to produce a flow. Our river has, probably, very near the smallest allowance. The story is current, at any rate, though I believe that strict history will bear it out, that the only bridge ever carried away on the main branch, within the limits of the town, was driven up stream by the wind. But wherever it makes a sudden bend it is shallower and swifter, and asserts its title to be called a river. Compared with the other tributaries of the Merrimack, it appears to have been properly named Musketaquid, or Meadow River, by the Indians. For the most part, it creeps through broad meadows, adorned with scattered oaks, where the cranberry is found in abundance, covering the ground like a moss-bed. A row of sunken dwarf willows borders the stream on one or both sides, while at a greater distance the meadow is

skirted with maples, alders, and other fluviatile trees, overrun with the grape-vine, which bears fruit in its season, purple, red, white, and other grapes. Still farther from the stream, on the edge of the firm land, are seen the gray and white dwellings of the inhabitants.

The sluggish artery of the Concord meadows steals thus unobserved through the town, without a murmur or a pulse beat, its general course from south-west to north-east, and its length about fifty miles; a huge volume of matter, ceaselessly rolling through the plains and valleys of the substantial earth with the moccasined tread of an Indian Warrior, making haste from the high places of the earth to its ancient reservoir. The murmurs of many a famous river on the other side of the globe reach even to us here, as to more distant dwellers on its banks; many a poet's stream floating the helms and shields of heroes on its bosom. The Xanthus or Scamander is not a mere dry channel and bed of a mountain torrent, but fed by the overflowing springs of fame; —

> "And thou Simois, that as an arrowe, clere
> Through Troy rennest, aie downward to the sea";—

and I trust that I may be allowed to associate our muddy but much abused Concord River with the most famous in history.

> "Sure there are poets which did never dream
> Upon Parnassus, nor did taste the stream
> Of Helicon; we therefore may suppose
> Those made not poets, but the poets those."

The Mississippi, the Ganges and the Nile, those journey-

ing atoms from the Rocky Mountains, the Himmaleh, and Mountains of the Moon, have a kind of personal importance in the annals of the world. The heavens are not yet drained over their sources, but the Mountains of the Moon still send their annual tribute to the Pasha without fail, as they did to the Pharaohs, though he must collect the rest of his revenue at the point of the sword. Rivers must have been the guides which conducted the footsteps of the first travellers. They are the constant lure, when they flow by our doors, to distant enterprise and adventure, and, by a natural impulse, the dwellers on their banks will at length accompany their currents to the lowlands of the globe, or explore at their invitation the interior of continents. They are the natural highways of all nations, not only levelling the ground and removing obstacles from the path of the traveller, quenching his thirst and bearing him on their bosoms, but conducting him through the most interesting scenery, the most populous portions of the globe, and where the animal and vegetable kingdoms attain their greatest perfection.

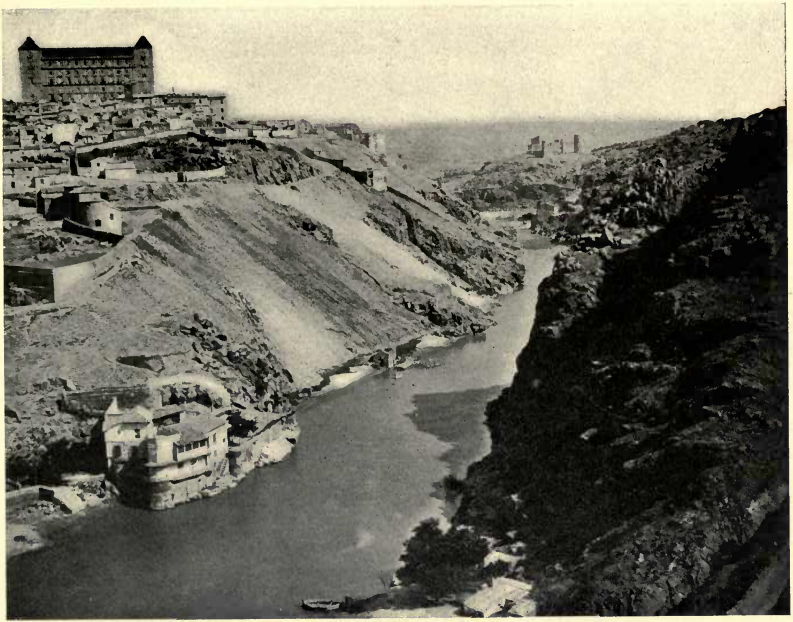
I had often stood on the banks of the Concord, watching the lapse of the current, an emblem of all progress, following the same law with the system, with time, and all that is made; the weeds at the bottom gently bending down the stream, shaken by the watery wind, still planted where their seeds had sunk, but erelong to die and go down likewise; the shining pebbles, not yet anxious to better their condition, the chips and weeds, and occasional logs and stems of trees that floated past, fulfilling their fate, were objects of singular interest to me, and at last I resolved to launch myself on its bosom and float whither it would bear me.

THE TAGUS

ARTHUR SHADWELL MARTIN

THE Tagus rises in that maze of mountains between Cuenca and Tereul on the frontier of New Castile and Aragon. It is the largest river of the Iberian peninsula, having a length of 566 miles. It is of little commercial advantage, however, as a means of traffic and communication, because in Spain its shallows, rapids and cataracts render it unnavigable through much of its course; and only from Villavelha, eighteen miles within the Portuguese frontier does it become navigable for the remaining 115 miles to its mouth. It flows from its source first north-westwards for about thirty miles to its junction with the Gallo, where it turns to the south-west to Toledo, whence it flows westwards to the frontier of Portugal at Abrantes. There it again curves south-westwards and falls into the Atlantic ten miles below Lisbon.

The waves of the Tagus, according to ancient historians, rolled with gold; it is even said that the sceptre of the kings of Portugal is made of the gold dust found in the deposit of this river. However, the Tagus is not now endowed with this auriferous virtue; and its banks in nowise deserve the brilliant descriptions indulged in by ancient and modern poets. They are generally escarpments and rocky gorges. The traveller, who follows the course of the stream through a country often bare, arid and uncultivated, or burnt up by the sultry rays of the sun, sees little



THE TAGUS

but an impetuous water course, narrow and impeded with dangerous rocks, forming dangerous cataracts and rapids. The rocky cliffs that hem it in have little vegetation beyond a few evergreen oaks; and with a few rare exceptions, notably the valleys of Aranjuez and Talavera, which have been embellished with human art and culture there are few parts of Spain so poor and savage in character. In winter, the Tagus has a considerable rise, and covers the few plains to be found along its banks; but in summer, like most of the other Spanish rivers it dwindles to almost nothing; so that even below Santarem, from Alcantara to the confluence of the Zezere, navigation is interrupted by numerous cataracts.

"Of the various phases of its most poetical and picturesque course—first green and arrowy amid the yellow cornfields of New Castile; then freshening the sweet Tempe of Aranjuez, clothing the garden with verdure, and filling the nightingale-tenanted glens with groves; then boiling and rushing around the granite ravines of rock-built Toledo, hurrying to escape from the cold shadows of its deep prison, and dashing joyously into light and liberty, to wander far away into silent plains and on to Talavera, where its waters were dyed with brave blood, and gladly reflected the flash of the victorious bayonets of England,—triumphantly it rolls thence, under the shattered arches of Almaraz, down to desolate Estremadura, in a stream as tranquil as the azure sky by which it is curtained, yet powerful enough to force the mountains of Alcantara. There the bridge of Trajan is worth going a hundred miles to see; it stems the now fierce condensed stream, and ties the rocky gorges together; grand, simple, and solid, tinted by the tender colours of seventeen centuries, it looms like the grey

skeleton of Roman power, with all the sentiment of loneliness, magnitude, and the interest of the past and present.

"How stern, solemn, and striking is this Tagus of Spain! No commerce has ever made it its highway—no English steamer has ever civilized its waters like those of France and Germany. Its rocks have witnessed battles, not peace; have reflected castles and dungeons, not quays or warehouses: few cities have risen on its banks, as on those of the Thames and Rhine; it is truly a river of Spain—that isolated and solitary land. Its waters are without boats, its banks without life; man has never laid his hand upon its billows, nor enslaved their free and independent gambols."

Travellers and tourists never take in the river as a whole, but content themselves with keeping to the railroad, and visiting the more famous towns on the banks,—such as Toledo, Talavera, Aranjuez, Abrantes and Lisbon.

At Toledo, the Tagus ages ago forced its way through a romantic, rocky pass, 2,400 feet above the level of the sea. The walls of the gorge are 200 feet high. This ancient city stands on the north bank of the river which washes its walls on three sides and forms the great protection of the stronghold. Rushing around it, on the east, south and west, between rocky cliffs, it leaves only one approach on the land side, which is defended by an inner and an outer wall. Its magnificent cathedral still repays a visit notwithstanding the vandalism of its foes. The river, after passing Toledo, runs through a deep and long valley, walled up on either hand by lofty mountains. Those on the right bank are always capped with snow, and ranging nearly parallel with the course of the stream, divide the valley of the Tagus from Old Castile and the Salamanca country; the highest parts are known by the

names of the Sierra de Gredos, Sierra de Bejar, and Sierra de Gata. In these sierras the Alberche, the Tietar, and the Alagon, take their rise, and, ploughing the valley in a slanting direction, fall into the Tagus.

Talavera de la Reyna is a delapidated ancient town surrounded with interesting old walls, and abounding in antique picturesque fragments. It is situated on the Tagus, seventy-five miles south-west of Madrid, in the centre of a fruit-growing district. It is famous for the great battle fought there in 1809 in which the French suffered a great defeat by Wellington.

Aranjuez is on the left bank of the river, twenty-eight miles south-west of Madrid, in a beautifully wooded valley. Here, for once, the stream runs smoothly between smiling banks.

Abrantes is finely situated on the river seventy miles above Lisbon. Its surrounding hills are covered with vineyards and olive groves; it is strongly fortified, and was an important position during the Peninsula war. Marshal Junot took this city as the title of his Dukedom.

Lisbon is built partly on the right bank of the Tagus and partly on hills behind. It extends for five miles along the estuary, which here forms a safe and spacious harbour.

The principal affluents of this neglected river are the Jarama, Guaddarama, Alberche, Alagon and Zezere from the north, and the Guadiela and Rio del Monte from the south.

THE INDUS

EDWARD BALFOUR

THE source of the Indus is in latitude 31° 20′ north, and longitude 80° 30′ east, at an estimated height of 17,000 feet, to the north-west of Lakes Manasarowara and Rawan H'rad in the southern slopes of the Gangri or Kailas Mountains, a short way to the eastwards of Gartop (Garo). The Garo river is the Sing-ge-chu or Indus. From the lofty mountains round Lake Manasarowara, spring the Indus, the Sutlej, the Gogra, and the Brahmaputra. A few miles from Leh, about a mile above Nimo, the Indus is joined by the Zanskar river. The valley where the two rivers unite is very rocky and precipitous, and bends a long way to the south. From this point the course of the Indus, in front of Leh and to the south-east for many miles, runs through a wide valley, but the range of the mountains to the north sends down many rugged spurs. A little lower, the Indus is a tranquil but somewhat rapid stream, divided into several branches by gravelly islands, generally swampy, and covered with low Hippophae scrub. The size of the river there is very much less than below the junction of the river of Zanskar. The bed of the Indus at Pitak, below Leh, has an elevation of about 10,500 feet above the level of the sea, but the town is at least 1,300 feet higher. From the sudden melting of accumulations of ice, and from temporary obstacles, occasioned by glaciers and avalanches in its upper course,

this river is subject to irregularities, and especially to debacles or cataclysms, one of which, in June, 1841, produced terrific devastation along its course, down even to Attock.

At the confluence of Sinh-ka-bab with the Shayok, the principal river which joins it on the north from the Kara-Korum Mountains, the river takes the name of Aba-Sin, Father of Rivers, or Indus proper, and flows then between lofty rocks, which confine its furious waters, receiving the tribute of various streams; and at Acho, expanding into a broader surface, it reaches Derbend, the north-west angle of the Panjab, where (about 815 miles from its source) it is 100 yards wide in August, its fullest season. From Derbend it traverses a plain, in a broad channel of no great depth in Attock, in latitude 33° 54′ north, longitude 72° 18′ east, having about 200 yards above this place received the river of Kabul, almost equal in breadth and volume, and attains a width of 286 yards, with a rapid boiling current, running (in August) at the rate of six miles an hour. The breadth of the Indus at Attock depends not only upon the season but the state of the river upwards, and varies from 100 to 260 yards. The whole length of its mountain course, from its source to Attock, is about 1,035 miles, and the whole fall is 16,000 feet, or 15.4 per mile. From Attock to the sea the length is 942 miles, making its whole length, from the Kailas Mountains to the Indian Ocean, 1,977 miles. Its maximum discharge, above the confluence of the Panjab or Five Rivers, occurs in July and August, when it is swollen by the seasonal rains, and it then reaches 135,000 cubic feet, falling to its minimum of 15,000 in December.

In the Tibetan of Sadakh it is commonly designated

Tsang-po, or the river, and is the Lampo-ho of the Chinese Pilgrim, Hiwen Thsang, who travelled in the middle of the Seventh Century.

Below the junction of the Panjab rivers down to Schwan, the Indus takes the name of Sar, Siro, or Sira; from below Hyderabad to the sea it is called Lar, and the intermediate portion is called Wicholo (Bich, Hindi), or Central, representing the district lying immediately around Hyderabad, just as, on the Nile, the Wustani, or Midlands of the Arabs, represents the tract between Upper and Lower Egypt. Sir A. Burnes mentions that Sar and Lar are two Baluch words for north and south. The Indus or Sind has been called by that name from time immemorial to the present day, by the races on its banks. The ancients knew that this was the native appellation. Pliny (lib. 6, vi), says, "Indus incolis Sindus appellatus." The Chinese call the river Sin-tow.

From Attock the course of the Indus to the sea, 940 miles, is south and south-west, sometimes along a rocky channel, between high and perpendicular cliffs, or forcing its way, tumbling and roaring, amidst huge boulders, the immense body of water being pent within a narrow channel, causing occasional whirlpools, dangerous to navigation, to Kalabagh, in latitude 32° 57′ north, longitude 71° 36′ east, situated in a gorge of the great Salt Range, through which the river rushes forth into the plain. In this part of its course it has acquired the name of Nil-ab, or Blue Water, from the colour imparted to it by the blue limestone hills through which it flows. There are some remains of a town on the bank of the river, named Nil-ab (where Timur crossed the Indus) supposed to be the Naulibus or Naulibe of Ptolemy. At Kalabagh the Indus enters a level

country, having for a short time the Khursuri Hills, which rise abruptly on the right. It now becomes muddy, and as far as Mittunkote, about 350 miles, the banks being low, the river, when it rises, inundates the country sometimes as far as the eye can reach. Hence the channels are continually changing, and the soil of the country being soft—a mud basin, as Lieutenant Wood terms it,—the banks and bed of the river are undergoing constant alterations. These variations, added to the shoals, and the terrific blasts occasionally encountered in this part of the river, are great impediments to navigation. The population on its banks are almost amphibious; they launch upon its surface, sustained by the inflated skins or mussaks, dried gourds, and empty jars used for catching the celebrated pulla fish, the Hilsa of Bengal. At Mittunkote the Indus is often 2,000 yards broad, and near this place, in latitude 28° 55′ north, longitude 70° 28′ east, it is joined, without violence, by the Panjnad, a large navigable stream, the collected waters of the Sutlej, Beas, Ravi, Chenab, and Jhelum. Its true channel, then a mile and a quarter wide, flows thence through Sind, sometimes severed into distinct streams, and discharges its different branches by various mouths into the Indian Ocean, after a course of 1,977 miles. The Indus, when joined by the Panjnad, never shallows, in the dry season, to less than fifteen feet, and seldom preserves so great a breadth as half a mile. Keeled boats are not suited to its navigation, as they are liable to be upset. The Zoruk, or native boat, is flat-bottomed. Other boats are the Dundi, Dund, Kotal, and Jumpti. Gold is found in some parts of the sands of the Indus.

The shore of its delta, about 125 miles in extent, is low and flat, and at high tide, to a considerable distance inland,

overflowed; and generally a succession of dreary, bare swamps.

In the mouths of the Indus, the tides rise about nine feet at full moon, and flow and ebb with great violence, particularly near the sea, when they flood and abandon the banks with incredible velocity. At seventy-five miles from the ocean they cease to be perceptible.

Between the Seer and Kori mouths, at the south-east of the delta, it is overspread with low mangrove jungle, running far into the sea, and from the Seer is a bare, uninhabited marsh. The main stream of the Indus has discharged its waters at many points between Cape Monze, immediately west of Kurachee and gulf of Cutch, if not even that of Cambay. Pitti, Hajamri, and Kediwari, now sea-channels and tidal creeks, shut off from the river, except during the monsoon, are all former mouths of the Indus. The Buggaur or Gharra is still a considerable stream during the inundation; it takes off from the Indus close to Tatta.

MARCH 16 1950
M. C. I.

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